Author Search

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=> file HCAPLUS
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FILE COVERS 1907 - 3 Jul 2007  VOL 147 ISS 2
FILE LAST UPDATED: 2 Jul 2007  (20070702/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> D QUE L25
L2             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  35948-25-5/RN
L4           126 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2(L)PREP/RL
L5           109 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 AND P/DT
L6            91 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND (PY<=2003 OR AY<=2003
                 OR PRY<=2003)
L7            17 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 NOT L5
L8            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7 AND PY<=2003
L9           103 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L6 OR L8)
L15        95763 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FIREPROOFING AGENTS+RT/CT
L16           78 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND L15
L21         4956 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MUELLER W?/AU
L22           58 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MEUSEL E?/AU
L23          245 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEINEMANN K?/AU
L24          152 SEA FILE=HCAPLUS ABB=ON  PLU=ON  TAEGER E?/AU
L25            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L21 OR L22 OR L23 OR L24)
                 AND L16


=> D IBIB ED ABS HITSTR L25 1

L25  ANSWER 1 OF 1  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2004:1154727  HCAPLUS  Full-text
DOCUMENT NUMBER:          142:75296
TITLE:                    Preparation of 9,10-dihydro-9-oxa-10-phospha-
                          phenanthrene-10-oxide (DOPO) adducts as comonomers for
                          flame-resistant thermoplastics
INVENTOR(S):              Mueller, Wolfgang; Meusel, Erich;
                          Heinemann, Klaus; Taeger, Eberhard
PATENT ASSIGNEE(S):       Thueringisches Institut Fuer Textil- Und
                          Kunststoff-Forschung E.V., Germany
SOURCE:                   PCT Int. Appl., 17 pp.
```

CODEN: PIXXD2
DOCUMENT TYPE: **Patent**
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004113355	A1	20041229	WO 2003-DE2030	20030618 <--
W: AE, AL, AT, AU, BA, BG, BR, BY, CA, CH, CN, CO, CR, CU, CZ, DK, EC, EE, FI, GB, HR, HU, ID, IL, IN, IS, JP, KE, KP, KR, LK, LT, LU, LV, MA, MG, MK, MN, MX, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SE, SG, SK, TJ, TM, TN, TR, UA, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003250753	A1	20050104	AU 2003-250753	20030618 <--
CN 1835960	A	20060920	CN 2003-826636	20030618 <--
TR 200505075	T2	20070122	TR 2005-5075	20030618 <--
US 2006247344	A1	20061102	US 2005-558997	20051201 <--
IN 2005CN03431	A	20070525	IN 2005-CN3431	20051216 <--

PRIORITY APPLN. INFO.: WO 2003-DE2030 A 20030618 <--

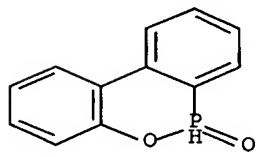
ED Entered STN: 30 Dec 2004

AB Novel reactive organic compds. containing poly-DOPO and having a higher P content than known comparable DOPO adducts, useful as comonomers for manufacture of flame-resistant thermoplastic polymers, e.g., polyesters and polyamides, were prepared by reacting DOPO with functional acetylenes in the presence of catalysts. For example, adding dropwise a solution of 22.8 g HCO2C.tplbond.CCO2H in 80 mL dioxane and 40 mL Et2O to a stirred solution of 108 g DOPO and 1 g (Me2CHO)3Al in 700 mL dioxane at 30° and stirring the whole for 20 h at 50-60° gave 94.5% (based on HCO2C.tplbond.CCO2H) of a white powder m. 199° (with decarboxylation) and containing 10.9% P.

IT **35948-25-5DP**, 9,10-Dihydro-9-oxa-10-phosphaphenanthrene-10-oxide, adducts with acetylenes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(manufacture of dihydrooxaphosphaphenanthrene oxide adducts with acetylenes as comonomers for flame-resistant thermoplastics)

RN 35948-25-5 HCAPLUS

CN 6H-Dibenz[c,e][1,2]oxaphosphorin, 6-oxide (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Text Search

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L5           109 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 AND P/DT
L6            91 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND (PY<=2003 OR AY<=2003
                 OR PRY<=2003)
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L8            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7 AND PY<=2003
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L11        18520 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10
L15        95763 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FIREPROOFING AGENTS+RT/CT
L16           78 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND L15
L18        19460 SEA FILE=HCAPLUS ABB=ON  PLU=ON  PLASTICS, MISCELLANEOUS/CT(L)T
                 HERMOPLASTIC/OBI OR PLASTICS/CT(L)THERMOPLASTIC/OBI
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L20            0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 AND L11
L26            3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L19 OR L20)


=> S L26 NOT L25
L27            2 L26 NOT L25

=> D IBIB ED ABS HITSTR L27 1-2

L27  ANSWER 1 OF 2  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2002:126371  HCAPLUS  Full-text
DOCUMENT NUMBER:          136:184673
TITLE:                    Oxaphosphaphenanthrene group-containing polyhydric
                          phenols, their compositions and cured products, and
                          halogen-free fire-, heat-, and moisture-resistant
                          thermoplastics
INVENTOR(S):              Kuboki, Kenichi
PATENT ASSIGNEE(S):       Nippon Kayaku Co., Ltd., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 10 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   2
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.          DATE
     ---------------      ----   --------    --------------------     --------
     JP 2002053633         A     20020219    JP 2000-241973           20000810 <--
     WO 2002014334         A1    20020221    WO 2001-JP6847           20010809 <--
         W:  CA, CN, KR, SG, US
         RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
             PT, SE, TR
PRIORITY APPLN. INFO.:                           JP 2000-241973      A  20000810 <--
                                                 JP 2000-293589      A  20000927 <--
ED   Entered STN:  19 Feb 2002
AB   Title phenols, useful for as materials for elec. insulators, printed circuit
     boards, carbon fiber-reinforced plastics, coatings, adhesives, etc., are
     obtained by polycondensation of 9,10-dihydro-9-oxa-10- phosphaphenanthrene 10-
     oxide (I) with HCHO and (polyhydric) phenols. Thus, 21.6 parts I was reacted
     with 14.4 parts o-cresol-formaldehyde condensate (d.p. 2) to give a polyhydric
     phenol derivative  EOCN 1020 was cured by the derivative and H 1 (phenol
```
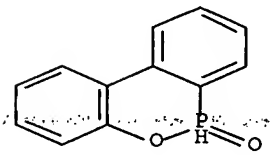

novolak resin) to show 1.6% moisture absorption, UL-94 flammability rating V-0, and Tg 160°.

IT **35948-25-5DP**, 9,10-Dihydro-9-oxa-10-phosphaphenanthrene 10-oxide, reaction products with phenols
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); **PREP (Preparation)**; USES (Uses)
(crosslinking agent; oxaphosphaphenanthrene group-containing polyhydric phenols as crosslinking agents for halogen-free fire-, heat-, and moisture-resistant thermoplastics)

RN 35948-25-5 HCAPLUS

CN 6H-Dibenz[c,e][1,2]oxaphosphorin, 6-oxide (CA INDEX NAME)



L27 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:619515 HCAPLUS Full-text

DOCUMENT NUMBER: 133:208778

TITLE: Fire-resistant resin compositions and electrically insulating adhesives therefrom for multilayer printed circuit boards

INVENTOR(S): Arai, Masataka; Komiyatani, Toshiro; Kamisaka, Masao

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DOCUMENT TYPE: **Patent**

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000239525	A	20000905	JP 1999-37697	19990216 <--

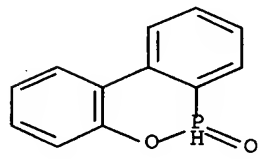
PRIORITY APPLN. INFO.: JP 1999-37697 19990216 <--

ED Entered STN: 06 Sep 2000

AB Title compns. comprise (i) sulfur-containing thermoplastic resins, (ii) nonhalogen polyfunctional epoxy resins with epoxy equivalent ≤500 per mol., (iii) reaction products of phosphorous compds. containing at least one P-H bond per mol. with epoxy compds. containing at least two epoxy groups per mol., and (iv) epoxy curing agents. Thus, an adhesive comprising 5003P 100, Epiclon 830S 40, a reaction product of 100 parts HCA with 184.3 parts EOCN 1020 50, 2-methylimidazole 5, KR 46B 0.2, and barium sulfate 20 parts was applied on a 18 μm-thick Cu foil (coating thickness 80 μm) to give an adhesive-coated Cu foil, which was used to prepare a printed circuit board showing flame resistance V-0, surface smoothness 5 μm, good solder heat resistance after moisture absorption, and peeling strength 1.0 kg/cm.

IT **35948-25-5DP**, HCA, reaction product with epoxy resins
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); **PREP (Preparation)**; USES (Uses)
(fire-resistant elec. insulating adhesive compns. for multilayer printed circuit boards)

RN 35948-25-5 HCAPLUS
CN 6H-Dibenz[c,e][1,2]oxaphosphorin, 6-oxide (CA INDEX NAME)



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L4           126 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2(L)PREP/RL
L5           109 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 AND P/DT
L6            91 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND (PY<=2003 OR AY<=2003
                 OR PRY<=2003)
L7            17 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 NOT L5
L8            12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7 AND PY<=2003
L9           103 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L6 OR L8)
L15        95763 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FIREPROOFING AGENTS+RT/CT
L16           78 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND L15


=> S L16 NOT L25,L26
L28           75 L16 NOT (L25 OR L26)

=> D IBIB ED ABS L28 1-75

L28  ANSWER 1 OF 75  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2005:1305501  HCAPLUS  Full-text
DOCUMENT NUMBER:          144:151112
TITLE:                    Phosphorous-containing flame retardant epoxy resins
INVENTOR(S):              Kuo, Pi-Tao; Taniuchi, Akira
PATENT ASSIGNEE(S):       Chin-Yee Chemical Industries Co., Ltd., Taiwan
SOURCE:                   Faming Zhuanli Shenqing Gongkai Shuomingshu, 19 pp.
                          CODEN: CNXXEV
DOCUMENT TYPE:            Patent
LANGUAGE:                 Chinese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.          DATE
     ---------------      ----   --------    --------------------     --------
     CN 1621443            A     20050601    CN 2003-10115435         20031125 <--
     TW 445277             B     20010711    TW 1999-88115269         19990904 <--
     JP 2005179598         A     20050707    JP 2003-425491           20031222 <--
PRIORITY APPLN. INFO.:                       TW 1999-88115269    A    19990904 <--
ED   Entered STN:  15 Dec 2005
AB   Title epoxy resin is prepared by the reaction of a reactive phosphorous-
     containing compound with epoxy resin having >2 epoxy groups and polycyclic
     structure.  Thus, 9,10-Dihydro-9-oxa-10-phosphaphenanthrene-10- oxide 216 g
     was reacted with epoxy resin (HP 7200) 1325 g at 160° in the presence of
     triethylamine 0.5 g for 2.5 h to give a phosphorous-containing epoxy rein with
     epoxy value 381 g/equivalent
```

L28 ANSWER 2 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1071593 HCAPLUS Full-text
DOCUMENT NUMBER: 143:327869
TITLE: Phosphorus-containing epoxy resin-based flame retardant compositions
INVENTOR(S): Huang, Kun-Yuan; Chen, Hung-Hsin; Chen, Chi-Fu
PATENT ASSIGNEE(S): ChangChun Plastics Co., Ltd., Taiwan
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 21 pp.
CODEN: CNXXEV
DOCUMENT TYPE: **Patent**
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1443804	A	20030924	CN 2002-107023	20020308 <--

PRIORITY APPLN. INFO.: CN 2002-107023 20020308 <--
OTHER SOURCE(S): MARPAT 143:327869
ED Entered STN: 07 Oct 2005
AB The compns., useful for semiconductor sealing materials, comprise: (A) a dibenzoxaphosphorin oxide-bearing epoxy resin, (B) a diglycidyl ether or polyglycidyl ether type epoxy resin, (C) reactive H-containing curing agent and (D) 0.01-5% curing promoter. Thus, reacting 216 g 9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide (HCA) with 112 g 4-hydroxybenzaldehyde, at 110° in toluene for 2 h gave a condensate, 338 g of which was added with g 94 g phenol and 3.4 g p-toluenesulfonic acid and reacted for another 2 h gave 2nd step condensate, 413 g of which was then reacted with 925 g epichlorohydrin at 55° for 5 h to give an A, 4 parts of which was mixed with 12.34 parts CNE 200ELB (cresol-aldehyde condensate polyglycidyl ether), 7.8 parts PF 5110 (curing agent) and 0.26 parts tripehnylphosphite, 74 parts silicon dioxide, 0.6 parts silane coupling agent, 0.4 parts carbon black and 0.6 parts wax to give a title composition

L28 ANSWER 3 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:612413 HCAPLUS Full-text
DOCUMENT NUMBER: 143:134164
TITLE: Process for producing phosphorus compound flame retardant, phosphorus compound flame retardant, and flame retardant polyester
INVENTOR(S): Sato, Maki; Yasuda, Shigeru; Tanaka, Machiko; Takeuchi, Hideo; Aratani, Satoshi; Yasui, Mamoru; Ogiso, Hiroki; Osaki, Tatsuhiko
PATENT ASSIGNEE(S): Toyo Boseki Kabushiki Kaisha, Japan; Takemoto Yushi Kabushiki Kaisha
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005063922	A1	20050714	WO 2004-JP19363	20041224 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,

LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG

CN 1910263 A 20070207 CN 2004-80038764 20041224 <--
PRIORITY APPLN. INFO.: JP 2003-431692 A 20031226 <--
WO 2004-JP19363 W 20041224

ED Entered STN: 15 Jul 2005

AB A phosphorus compound flame retardant, which is to be copolymd. in polyester production, does not arouse problems, for example, that it undergoes pyrolysis, flies out of the system, or causes polymer gelation under high-temperature reduced-pressure conditions used for polycondensation for polyester production The flame retardant polyester thus produced has a satisfactory color tone. The process for producing the flame retardant comprises reacting an organophosphorus compound (e.g., 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide) with an unsatd. carboxylic acid (e.g., itaconic acid) and/or an anhydride thereof in an alkylene glycol (e.g., ethylene glycol), wherein the reaction is conducted in the presence of ≥1 antioxidant (e.g., tert-butylcatechol) incorporated in a total amount of 0.001-10% based on the organophosphorus compound

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 4 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:547645 HCAPLUS Full-text
DOCUMENT NUMBER: 143:79070
TITLE: Thermoplastic resin composition for masterbatch, process for producing molding material, thermoplastic resin composition containing masterbatch and process for producing thermoplastic resin composition
INVENTOR(S): Sato, Maki; Takeuchi, Hideo; Tanaka, Machiko; Kubota, Fuyuhiko; Gyobu, Shoichi; Yasuda, Shigeru; Nishio, Kenichi; Ohnishi, Toshimasa
PATENT ASSIGNEE(S): Toyo Boseki Kabushiki Kaisha, Japan; Nagase Chemtex Corporation
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005056646	A1	20050623	WO 2004-JP18266	20041208 <--

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GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
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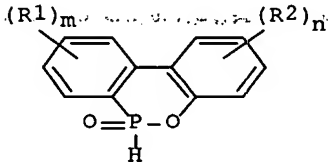
MR, NE, SN, TD, TG

JP 2005194499	A	20050721	JP 2004-291503		20041004 <--
JP 3934133	B2	20070620			
JP 2006104291	A	20060420	JP 2004-291506		20041004
EP 1693403	A1	20060823	EP 2004-820219		20041208 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS					
CN 1890298	A	20070103	CN 2004-80036733		20041208 <--
PRIORITY APPLN. INFO.:			JP 2003-410547	A	20031209 <--
			JP 2004-291503	A	20041004
			JP 2004-291506	A	20041004
			WO 2004-JP18266	W	20041208

OTHER SOURCE(S): MARPAT 143:79070
ED Entered STN: 24 Jun 2005
GI



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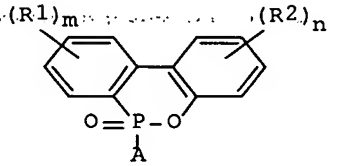


II

AB The resin composition for masterbatches having a P content of ≥5000 ppm comprises I and/or II (A = organic group; R1, R2 = organic group, halo; m, n = 0-4, provided that when m or n is 2-4, then R1's may be the same or different or R2's may be the same or different) and a thermoplastic resin (e.g., polyester). Even when the thermoplastic resin composition for masterbatches has a high P content so as to have flame retardancy, it can be mixed with thermoplastic resins of the same or a different kind to give easily moldable thermoplastic resin compns.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 5 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:492577 HCAPLUS Full-text
DOCUMENT NUMBER: 143:27752
TITLE: Epoxy resin compositions forming flexible cured products with good heat and fire resistance and products therefrom
INVENTOR(S): Akatsuka, Yasumasa; Motegi, Shigeru
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005146142	A	20050609	JP 2003-386695	20031117 <--
PRIORITY APPLN. INFO.:			JP 2003-386695	20031117 <--

ED Entered STN: 10 Jun 2005

AB The compns., useful for flexible films for electronic devices, comprise reaction products of GC6H4[CH2(p-C6H4)2CH2C6H3G]nH (I: G = glycidoxy) and 9,10-dihydro-9-oxa-10-phosphorylphenanthrene-10-oxide (HCA) or 10-(2',5'-dihydroxyphenyl)-9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (HCA-HQ), novolaks (HO)RC6H3[CH2C6H2(OH)R]mH (R = H, C1-4 alkyl) having softening point (Ts) 130-200°, and optionally curing accelerators. Varnishes of the compns. and sheets having layers of the compns. on one or both sides of flat supports (e.g., polyimide films, metal foils, release films) are further claimed. Thus, 275 parts NC 3000 (I; epoxy equiv 275 g/equiv) was reacted with 93 parts HCA in the presence of Me4NCl to give a modified epoxy resin with P content 3.5% and epoxy equiv 648 g/equiv, 100 parts of which was blended with cresol novolak (Ts 175.2°) 19, 2PHZ-PW (imidazole) 1, and MEK 30 parts, pasted on a 25-μm-thick PET film, cured at 180°, and released from the PET film to give a flexible film showing Tg 175.3° and UL 94 fire resistance rating V0. A polyimide/Cu foil press sample obtained by using the composition as adhesive layer showed Cu foil peeling resistance 10.4 N/cm.

L28 ANSWER 6 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:1100206 HCAPLUS Full-text
DOCUMENT NUMBER: 142:374875
TITLE: Halogen-free flame-retardant phosphorous- and nitrogen-containing epoxy resin composition and prepregs and laminates therefrom
INVENTOR(S): Wang, Mingyan; Liu, Dongdong; Wu, Yongguang; Lin, Rensong
PATENT ASSIGNEE(S): Hongchang Electronic Material Industry Co., Ltd., Guangzhou, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 14 pp.
CODEN: CNXXEV
DOCUMENT TYPE: **Patent**
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1488672	A	20040414	CN 2003-140024	20030801 <--

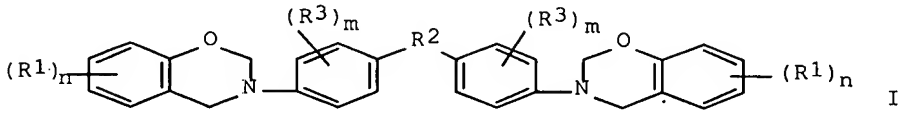
PRIORITY APPLN. INFO.: CN 2003-140024 20030801 <--
ED Entered STN: 21 Dec 2004
AB The epoxy resin composition is composed of non-halogenated epoxy resin containing ≥2 epoxy groups, a reaction product of a P compound with a compound containing functional group (such as double bond, epoxy, alc. OH, phenolic OH, CO, NH2, cyanate ester group, or isocyanate ester group) in the presence of a halogen-free catalyst, and nitrogenous curing agent. Preparing a solid resin by reacting bisphenol A epoxy resin (GELR 128E) 50, NPCN 704 200, TPN 6, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide 90, and a non-halo catalyst 0.1 part, mixing (500 parts) with NPEP 170 72, NPCN 704 145, cyanoguanidine 23, 2-methylimidazole 1, and 66.5% epoxy resin in Me2CO-AcNMe2 gave a composition containing 2.5% P and 2.1% N. The composition was used to impregnate a nonwoven glass fabric and laminated with a Cu foil, showing UL 94 rating V0 and good adhesion and moisture resistance.

L28 ANSWER 7 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:609941 HCAPLUS Full-text
DOCUMENT NUMBER: 141:141262
TITLE: Halogen-free phosphorus-containing epoxy resin composition as varnish for foil laminate or prepreg
INVENTOR(S): Hwang, Kuen-Yuan; Tu, An-Pang; Liang, Mong; Ju,

Chi-Yi; Wu, Sheng-Yen; Kao, Chun-Hsiung; Su, Fang-Shian
PATENT ASSIGNEE(S): Chang Chun Plastics Co., Ltd., Taiwan
SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004147640	A1	20040729	US 2003-412126	20030411 <--
US 6900269	B2	20050531		
JP 2004217886	A	20040805	JP 2003-286452	20030805 <--
JP 3729821	B2	20051221		
CN 1580128	A	20050216	CN 2003-153174	20030808 <--

PRIORITY APPLN. INFO.: TW 2003-92100846 A 20030116 <--
ED Entered STN: 30 Jul 2004
GI



I

AB Halogen-free resin composition comprises (A) ≥1 P-containing epoxy resins, (B) hardener, (C) a hardening accelerator, (D) a polyphenylene oxide, and (E) a filling material, where the hardener of component B has the structure I, where R1 = alkyl, alkenyl, alkoxyl, a hydroxy group, and an amino group; R2 = direct bond, alkylene, O, S and SO2; R3 = H or alkyl, and m and n = 0-4. The halogen-free resin composition without adding halogen has excellent heat resistance and flame retardant property, and excellent dielec. property. The halogen-free resin composition is particularly useful in the application of bonding sheets, composite materials, laminated plates, printed circuit boards, Cu foil adhesives, inks used for build-up process, semiconductor packaging materials and the like.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 8 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:512442 HCAPLUS Full-text
DOCUMENT NUMBER: 141:39585
TITLE: Phosphite compounds with excellent hydrolysis resistance, their compositions, and laminates using them with excellent fire and heat resistance
INVENTOR(S): Hatta, Yukihiro; Ogasawara, Kenji; Kashiwabara, Keiko; Nogami, Koichi
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004175891	A	20040624	JP 2002-342911	20021126 <--
JP 3852597	B2	20061129		

PRIORITY APPLN. INFO.: JP 2002-342911 20021126 <--
OTHER SOURCE(S): MARPAT 141:39585
ED Entered STN: 25 Jun 2004
AB The compns., useful for printed circuit boards, contain the compds. derived from 4-R1-5-R2-2-chloro-1,3,2-dioxaphospholane (R1,2 = H, C1-6 hydrocarbyl; R1-R2 may form 5-7-membered saturated or unsatd. hydrocarbon ring) and phenolic OH-containing compds. as fireproofing agents, curing agents, or epoxy resins (if the compds. are epoxidized). Thus, impregnating glass cloths with a composition containing Epiclon 1050 (bisphenol A epoxy resin) 70, Epiclon N 775 (novolak epoxy resin) 30, dicyandiamide 2, and a reaction product of 126 g hydroxyhydroquinone and 524 g 4,5-benzo-2-chloro-1,3,2-dioxaphospholane 20.5 parts, semicuring them, laminating Cu foils with resulting 4 prepregs, and curing them gave a test piece showing fire resistance (UL 94) V-0, heat-resistant temperature 245°, and good insulation properties at 85° and 85% relative humidity for 1000 h.

L28 ANSWER 9 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:507857 HCAPLUS Full-text
DOCUMENT NUMBER: 141:55397
TITLE: Halogen-free epoxy resin compositions containing aluminum hydroxide and prepregs, metal-clad laminates, and printed circuit boards using them with excellent fire, heat, and moisture resistance
INVENTOR(S): Motobe, Eiji; Nakamura, Yoshihiko; Takahashi, Ryuji
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004175895	A	20040624	JP 2002-342942	20021126 <--

PRIORITY APPLN. INFO.: JP 2002-342942 20021126 <--
ED Entered STN: 24 Jun 2004
AB The compns. contain P-containing epoxy resins, inorg. fillers (except metal hydroxides) with heat-decomposition temperature ≥400°, and Al(OH)3 with sp. surface area 1.0-3.5 m2/g and median particle size 2.5-10 μm. Thus, a composition containing Epo Tohto YDCN 701 (cresol novolak epoxy resin) 31, Epiclon 1050 (bisphenol A epoxy resin) 52, dicyandiamide 2.8, PKP 81 (talc) 20, CL 310 [Al(OH)3] 100, and PX 200 (non-reactive P compound) 17 parts gave a multilayer printed circuit board showing fire resistance (UL 94) V-0, moisture absorption 0.80%, and good resistance to Ni plating solution

L28 ANSWER 10 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:411768 HCAPLUS Full-text
DOCUMENT NUMBER: 140:407886
TITLE: Non-halogen epoxy resin compositions with excellent

fire and heat resistance and their use
INVENTOR(S): Hwan, Ku-yuan; Do, An-ban; Zhu, Chi-yi; Zhai, Wen-tsai
PATENT ASSIGNEE(S): Changchun Plastics Product Co., Ltd., Taiwan
SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004143424	A	20040520	JP 2003-286454	20030805 <--
TW 576854	B	20040221	TW 2002-91125399	20021025 <--
US 2004158023	A1	20040812	US 2003-633890	20030804 <--
US 7084194	B2	20060801		
CN 1580127	A	20050216	CN 2003-153172	20030808 <--

PRIORITY APPLN. INFO.: TW 2002-91125399 A 20021025 <--
OTHER SOURCE(S): MARPAT 140:407886
ED Entered STN: 21 May 2004
AB The compns., useful for adhesive sheets, printed circuit boards, and semiconductor packaging materials, etc., contain ≥1 P-containing epoxy resins, curing agents XQR2QX (X = R1n-substituted 3,4-dihydro-2H-1,3- benzoxazin-3-yl; Q = R3m-substituted p-phenylene; R1 = alkyl, alkenyl, alkoxy, OH, amino; R2 = single bond, alkylene, O, S, SO2; R3 = H, alkyl; m, n = 0-4), and curing accelerators. Thus, a composition containing epoxy resin (A; solids content 60%) prepared from 1000 g BE 199EL (bisphenol A diglycidyl ether) and 550 g a reaction product of 9,10-dihydro-9-oxa-10- phosphaphenanthren-10-oxide (HCA) and 4-hydroxybenzaldehyde 240, epoxy resin (B; solids content 50%) prepared from 1000 g CNE 200ELF (cresol-aldehyde condensate polyglycidyl ether) and 400 g HCA 50, curing agent (C; prepared by reacting 4,4'-diaminodiphenylmetahne, PhOH, and HCHO in PhME) 88, and 10% 2-methylimidazole (D) 1.0 g gave a Cu-clad aromatic polyamide paper laminate with peel strength 1.2 kJN/m and fire resistance (UL 94) V-0.

L28 ANSWER 11 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:117863 HCAPLUS Full-text
DOCUMENT NUMBER: 140:164702
TITLE: Manufacture of flame-resistant polyesters
INVENTOR(S): Koketsu, Masashi; Shimizu, Hideki; Komatsu, Kazunori
PATENT ASSIGNEE(S): Toyobo Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004043535	A	20040212	JP 2002-199606	20020709 <--

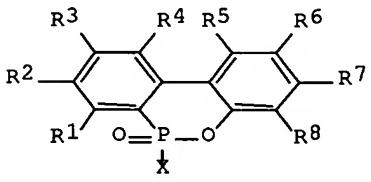
PRIORITY APPLN. INFO.: JP 2002-138481 A 20020514 <--
OTHER SOURCE(S): MARPAT 140:164702
ED Entered STN: 13 Feb 2004
AB The polyesters are manufactured by (trans)esterification of dicarboxylic acids or their ester-forming derivs. and diols or their ester-forming derivs. in the presence of R1PH(O)R2 (R1, R2 = alkyl, aryl, alkoxy, may be substituted by halo or form ring), unsatd. carboxylic acids or their ester-forming derivs., and amines with b.p. ≥100°, followed by polycondensation. Thus, terephthalic

acid 98, ethylene glycol 100, HCA (9,10-dihydro-9-phospha-10-oxaphenanthrene 9-oxide) 1.9, and itaconic acid 2.0 mol% were treated with 0.05 mol%/acid of N,N-dimethylpiperazine in an esterification tank to 95% conversion, and polycondensed with 0.03 mol% Sb2O3 for 58 min to give a P-containing polyester showing reduced viscosity 0.74 dL/g and limiting O index 26.4%.

L28 ANSWER 12 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:945477 HCAPLUS Full-text
DOCUMENT NUMBER: 139:396780
TITLE: Fire- and heat-resistant UV-shielding phosphorus-containing epoxy resin compositions, their varnish, prepregs, and laminates
INVENTOR(S): Sagara, Takashi; Hibino, Akinori; Higashida, Toshiyuki
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003342349	A	20031203	JP 2002-154337	20020528 <--
PRIORITY APPLN. INFO.:			JP 2002-154337	20020528 <--

ED Entered STN: 04 Dec 2003
GI



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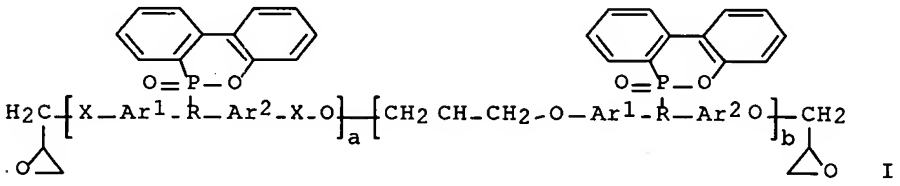
AB The compns. with P content 0.5-4.0% comprise (A) P-containing epoxy resins containing ≥20% novolak epoxy resins manufactured by reacting epoxy resins with organic P compds. I [R1-8 = C1-6-hydrocarbyl, hetero-containing group, H; X = substituted Ph, naphthalenyl (≥2 substituents = OH; other substituent = H, C1-6-hydrocarbyl, hetero-containing group)] or Q1POX'Q2 (Q1, Q2 = substituted Ph, substituent = C1-6-hydrocarbyl, hetero-containing group, H; X' = X), (B) 1-20% (based on total epoxy resins) tetrafunctional epoxy resins Q32CHCHQ32 (II; Q3 = glycidoxycyclohexyl), and (C) curing agents. Thus, 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (HCA) was reacted with 1,4-naphthoquinone, further reacted with an epoxy resin (YDPN 638), mixed with dicyandiamide, II (Epon 1031), and curing accelerators, impregnated into glass cloths (7628H258), laminated with Cu foils, and hot-pressed to give a laminate showing UL 94 fire resistance rating V0 and Tg 145°.

L28 ANSWER 13 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:868172 HCAPLUS Full-text
DOCUMENT NUMBER: 139:365959
TITLE: Fire-resistant phosphorus-containing epoxy resins, their compositions, and their cured products for sealants of semiconductor devices
INVENTOR(S): Huang, Kun-yuan; Chen, Hung-hsin; Chen, Chi-fu
PATENT ASSIGNEE(S): Changchun Synthetic Resin Co., Ltd., Taiwan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003313269	A	20031106	JP 2002-116417	20020418 <--
JP 3825715	B2	20060927		

PRIORITY APPLN. INFO.: JP 2002-116417 20020418 <--
ED Entered STN: 06 Nov 2003
GI



I

AB Title resins comprise I [R = C1-6 alkylene; a = 1-10; b = 0-10; X = [OCH2CH(OH)CH2OM]y; y = 0-20; M, Ar1, Ar2 = group selected from groups described in the document]. The cured products are obtained by curing compns. containing I, active H-containing curing agents, and curing aids at 50-350°. Thus, a composition containing a P-containing epoxy resin prepared from HCA (organosphosphorus cyclic compound), 4-hydroxybenzaldehyde, PhOH, and chloropropylene oxide, CNE 200ELB (cresol-aldehyde condensate polyglycidyl ether), PF 5110 (curing agent), and Ph3P was melt kneaded, pulverized, and molded to give a test piece showing UL-94 V-0 and good solder-heat and water resistance.

L28 ANSWER 14 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:771526 HCAPLUS Full-text
DOCUMENT NUMBER: 139:277758
TITLE: Halogen-free alkali-developable photocurable and thermosetting novolak compositions with good fire resistance
INVENTOR(S): Iwasa, Aiko; Nita, Hiroshi; Yoda, Kyoichi; Nagano, Taku; Inagaki, Hitoshi
PATENT ASSIGNEE(S): Taiyo Ink Mfg Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003277470	A	20031002	JP 2002-81536	20020322 <--

PRIORITY APPLN. INFO.: JP 2002-81536 20020322 <--
OTHER SOURCE(S): MARPAT 139:277758
ED Entered STN: 02 Oct 2003
AB The compns., useful for solder resists and interlayer dielec. films for printed circuit boards, contain (A) photosensitive carboxy-containing resins manufactured by reaction of unsatd. group-containing monocaboxylic acids with novolak-alkylene oxide adducts and subsequent reaction of polybasic acid anhydrides with the resulting esters, (B) photoinitiators, (C) photosensitive (meth)acrylates, (D) epoxy compds., (E) solvents, and (F) reaction products of quinones with organophosphorus compds. bearing one active H bonded to P.

L28 ANSWER 15 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:693370 HCAPLUS Full-text
DOCUMENT NUMBER: 139:198604
TITLE: Flame-retardant thermosetting resin compositions and their use in prepregs and laminates for electric wiring boards
INVENTOR(S): Obori, Kenichi; Takeda, Yoshiyuki; Kakitani, Minoru; Abe, Norihiro
PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003246844	A	20030905	JP 2002-49845	20020226 <--

PRIORITY APPLN. INFO.: JP 2002-49845 20020226 <--
OTHER SOURCE(S): MARPAT 139:198604
ED Entered STN: 05 Sep 2003
AB The compns. comprise (A) epoxy resins 5-80, (B) dihydrobenzoxazine ring-containing compds. 0-80, and (C) polycondensates of phenols, triazine ring-containing compds., and aldehydes 5-80 parts to satisfy A + B + C = 100 parts, wherein 5-80 parts of P-containing epoxy resins are contained in A. Usage of harmful halogen compds. and Sb compds. is suppressed in the compns. Thus, dinydrobenzoxazine ring-containing compound [prepared from phenol-formaldehyde copolymer, aniline, and formaldehyde] was mixed with phenolic novolak epoxy resin, P-containing epoxy resin [prepared from HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide) and phenolic novolak epoxy resin], and melamine-phenol-formaldehyde copolymer, and MEK to give a varnish, which was used for impregnation of glass cloths to give prepregs. Then, 8 sheets of the prepregs were sandwiched between Cu foils and hot-pressed to give a Cu-clad laminate showing UL-94 fire resistance V-0.

L28 ANSWER 16 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:644513 HCAPLUS Full-text
DOCUMENT NUMBER: 139:181134
TITLE: Halogen-free prepregs with high glass transition temperature and good dielectric property and laminates

therefrom
INVENTOR(S): Nagai, Tadashi
PATENT ASSIGNEE(S): Mitsubishi Gas Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003231762	A	20030819	JP 2002-35415	20020213 <--
PRIORITY APPLN. INFO.:			JP 2002-35415	20020213 <--

ED Entered STN: 19 Aug 2003
AB The prepregs, useful for printed circuit boards, comprise (A) resin compns. containing P-containing epoxy resins, cyanate ester resins, and optionally inorg. fillers and (B) substrates impregnated/coated with A and semicured. Thus, an E-glass cloth was impregnated with a varnish comprising Epiclon EXA 9709 (epoxy resin modified with reaction product of 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide and 1,4-benzoquinone), BT 2070 [2,2-bis(4-cyanatophenyl)propane prepolymer], and CL 303 [Al(OH)3] to give a prepreg, 4 of which were laminated with Cu foil and press molded to give a laminate showing dielec. loss tangent 0.009 at 1 MHz, Tg 204°, and UL-94 fire resistance rating V-0.

L28 ANSWER 17 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:596626 HCAPLUS Full-text
DOCUMENT NUMBER: 139:150760
TITLE: Halogen-free epoxy resin compositions with excellent fire resistance, prepregs containing them, and laminated boards thereof
INVENTOR(S): Ishida, Takehiro; Komemoto, Kamio; Fujiki, Tomoyuki
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003221430	A	20030805	JP 2002-24503	20020131 <--
JP 3912125	B2	20070509		
PRIORITY APPLN. INFO.:			JP 2002-24503	20020131 <--

ED Entered STN: 05 Aug 2003
AB The compns. comprise (A) P-containing epoxy resins prepared by modification of epoxy resins with 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (I), (B) aromatic diamines having 3-6 benzene rings in a mol., and (C) solvents. Thus, 141 parts I (HCA) was treated with 26 parts 1,4-naphthoquinone in PhMe, further treated with 833 parts YDCN 701 (cresol novolak epoxy resin) in the presence of PPh3, and freed of volatile components to give a P-containing epoxy resin (2.0% P). A varnish comprising the P-containing epoxy resin 100, 4,4'-bis(4-aminophenoxy)biphenyl (BAPB) 29, and DMF 120 parts showed gel time 300 s at 170° and was impregnated into aramid fiber nonwoven fabrics to give prepregs, which were piled, sandwiched with Cu foils, and hot-pressed to give a Cu-clad laminate showing UL fire resistance rating V-0, peel strength of the Cu foils 1.6 N/m, moisture absorption 2.4%, and good laser processability.

L28 ANSWER 18 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:470528 HCAPLUS Full-text
DOCUMENT NUMBER: 139:37638
TITLE: Fire-resistant epoxy resin composition and their highly insulating films, prepregs, and laminates
INVENTOR(S): Ogasawara, Kenji; Kashiwabara, Keiko; Fujiwara, Hiroaki; Matsumoto, Takakage
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003171438	A	20030620	JP 2001-372081	20011206 <--
PRIORITY APPLN. INFO.:			JP 2001-372081	20011206 <--

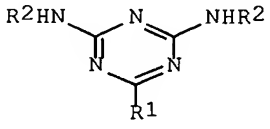
ED Entered STN: 20 Jun 2003
AB The compns., useful for printed circuit boards, etc., comprise (a) P-containing epoxy resins prepared by reaction of epoxy resins with P compds. mainly containing 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (I) and (b) crosslinking agents satisfying P content in I (based on total amount of epoxy resins and crosslinking agents) ≥0.3% and content of H(HO)(O:)P-1,2-C6H4-1,2-C6H4OH (II) in the P compds. (based on total amount of epoxy resins and crosslinking agents) ≤100 ppm. Thus, a composition containing a reaction product of EPPN 502H (polyfunctional epoxy resin) with I, Epiclon 850S (bisphenol A glycidyl ether), and dicyandiamide was applied on a PET film and dried to give a film with thickness 65 μm, P content 2.12%, and II content 0%, which was used for a printed circuit board resulting in good insulating property.

L28 ANSWER 19 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:401595 HCAPLUS Full-text
DOCUMENT NUMBER: 140:146942
TITLE: Synthesis of a new phosphorus-containing flame retardant
AUTHOR(S): Xiong, You-qing; Kang, Hui-bao; Wang, Li-sheng
CORPORATE SOURCE: School of Chemical Engineering and Environmental Science, Beijing Institute of Technology, Beijing, 100081, Peop. Rep. China
SOURCE: Yingyong Huagong (**2003**), 32(2), 41-43
CODEN: YHIUA7; ISSN: 1671-3206
PUBLISHER: Yingyong Huagong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 27 May 2003
AB Using o-Ph phenol and phosphorus trichloride as raw materials, and Lewis acid as catalyst, a new flame retardant [(6-oxide-6H-dibenz(c, e)(1,2)oxaphosphorin-6-yl) methyl]-butanedioic acid (DDP) is synthesized. Solubility of DDP in acetone-water mixed solvent is determined The concentration 60% acetone-water mixture is a right solvent for recrystn., which offers basic data for purification of product.

L28 ANSWER 20 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:322187 HCAPLUS Full-text
DOCUMENT NUMBER: 138:288435
TITLE: Preparation of resin curing agent containing phosphorus and nitrogen and fireproof resin composition containing said curing agent
INVENTOR(S): Huang, Kunyuan; Chen, Hongxing; Du, Anbang
PATENT ASSIGNEE(S): Changchun Artificial Resin Plant Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 16 pp.
CODEN: CNXXEV
DOCUMENT TYPE: **Patent**
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1339525	A	20020313	CN 2000-123525	20000818 <--
PRIORITY APPLN. INFO.:			CN 2000-123525	20000818 <--

ED Entered STN: 28 Apr 2003
GI



I

AB The resin curing agent containing phosphorus and nitrogen has structural formula I, where R1 is NHR2, C1-6 alkyl, etc., R2 is H atom or a group containing phenol-formaldehyde oligomer chain and derivative of 9,10-dihydro-9- oxa-10-phospho-anthracene-10-oxide. A fireproof resin composition is obtained from an epoxy resin , the resin curing agent containing phosphorus and nitrogen, and a curing promoter (such as quaternary ammonium salt), and/or other curing agent (such as amine). The fireproof resin composition can be used to produce composite material, printing circuit board, semiconductor enclosed material, etc. Thus, a curing agent containing phosphorus and nitrogen prepared by reacting a composition comprising phenol, paraformaldehyde, benzoguanamine, 9,10-dihydro-9- oxa-10-phospho-anthracene-10-oxide, and oxalic acid was formulated with epoxy resin BE188EL, CNE200ELD, and 2-methylimidazole promoter with solvent to make an epoxy resin clear coating which showed fire-retardancy when fabricated with fiber glass.

L28 ANSWER 21 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:305078 HCAPLUS Full-text
DOCUMENT NUMBER: 138:272588
TITLE: Fire retardant phosphaphenanthrene epoxy phenolic resin and its uses
INVENTOR(S): Huang, Kunyuan; Chen, Hongxing; Du, Anbang
PATENT ASSIGNEE(S): Changchun Artificial Resin Plant Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 22 pp.
CODEN: CNXXEV
DOCUMENT TYPE: **Patent**

LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1339519	A	20020313	CN 2000-123528	20000818 <--
PRIORITY APPLN. INFO.:			CN 2000-123528	20000818 <--

ED Entered STN: 22 Apr 2003
AB The phosphorous resin is prepared by the reaction of (A) an epoxy resin (such as bisphenol glycidyl ether) with (B) 9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide and (C) other compound containing active hydrogen (such as bisphenol resin) in a ratio of epoxy equivalent weight of A to active hydrogen equivalent weight of B and active hydrogen equivalent weight of C = 100 : (5-50) : (0-45). A fire retarded resin composition useful in prepreg, composite material, printing circuit board, semiconductor enclosed material, etc., is obtained from the phosphorous resin, a curing agent and a curing promoter (such as a quaternary ammonium salt), and/or an epoxy resin (such as bisphenol glycidyl ether), and/or other curing agent (such as amine).

L28 ANSWER 22 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:300635 HCAPLUS Full-text
DOCUMENT NUMBER: 138:305073
TITLE: Phosphorus-containing resins and fire-resistant epoxy resin compositions containing the same
INVENTOR(S): Hwang, Kuen-Yuan; Chen, Hong-Hsing; Tu, An-Pang
PATENT ASSIGNEE(S): Chang Chun Plastics Co., Ltd., Taiwan
SOURCE: U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003073781	A1	20030417	US 2001-929166	20010814 <--
PRIORITY APPLN. INFO.:			US 2001-929166	20010814 <--

ED Entered STN: 18 Apr 2003
AB The fire-resistant composition comprises a phosphorus-containing resin having a functional group obtained by reacting an epoxy group of a epoxy resin with 9,10-dihydro-9-oxa-10-phosphorusphenanthrene-10-oxide, a nitrogen-containing resin hardener and a hardening promoter. The composition has good fire and heat resistance with halogen free and is useful for producing prepregs, composite materials, laminates, printed circuit boards, copper foil adhesives, and packaging materials for semiconductors. Thus, a glass fiber cloth was immersed into an epoxy composition comprising 150 parts blend containing CNE 200ELB (cresol-aldehyde condensate polyglycidyl ether) 1000, 9,10-dihydro-9-oxa-10-phosphorusphenanthrene-10-oxide 320 and ethyltriphenylphosphonium acetic acid complex 6.0 parts, 153 parts BE 50 (epoxy resin), 65 parts Melan 9000 (curing agent) and 1.8 parts 2-methylimidazole, and dried, showing UL 94 fire resistance rating V-0, peeling strength 8.9 lb/in and good heat resistance.

L28 ANSWER 23 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:246858 HCAPLUS Full-text
DOCUMENT NUMBER: 139:36940
TITLE: Novel approach to the chemical modification of

poly(vinyl alcohol): Phosphorylation
AUTHOR(S): Liu, Ying-Ling; Chiu, Yie-Chan
CORPORATE SOURCE: Department of Chemical Engineering and R & D Center for Membrane Technology, Chung Yuan Christian University, Taoyuan, 320, Taiwan
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (**2003**), 41(8), 1107-1113
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 31 Mar 2003
AB The chemical modification of poly(vinyl alc.) (PVA) was performed through oxidation followed by nucleophilic addition PVA was oxidized by KMnO4 to form vinyl ketone units along the polymer backbone. The chemical modification of PVA was then conducted through the reaction of the carbonyl group of the vinyl ketone unit with 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOPO) as a nucleophile. Through this approach, the phosphorous DOPO group was attached onto the carbon atom of the polymer main chain rather than onto the pendent hydroxyl groups of PVA. The formed DOPO-containing PVA showed improved thermal stability, organosoly., and flame retardance.
REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 24 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:200549 HCAPLUS Full-text
DOCUMENT NUMBER: 138:222349
TITLE: Nitrogen-containing fire-resistant epoxy resins with good fire and heat resistance and compositions therewith
INVENTOR(S): Huang, Kun-Yuan; Chen, Hung-Hsing; Chen, Chih-Fu; Chao, Huan-Chang
PATENT ASSIGNEE(S): Changchun Synthetic Resin Co., Ltd., Taiwan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003073448	A	20030312	JP 2002-29338	20020206 <--
JP 3588456	B2	20041110		
TW 513482	B	20021211	TW 2001-90121704	20010831 <--
US 2003099839	A1	20030529	US 2002-35238	20020104 <--
US 6617029	B2	20030909		

PRIORITY APPLN. INFO.: TW 2001-90121704 A 20010831 <--
ED Entered STN: 14 Mar 2003
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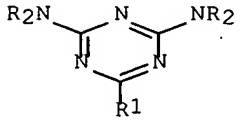


I

AB Title epoxy resins are represented by the formula I, where R = independently H or R2-C6-13 aryl-(OR3)r, R2 = C1-6 alkylene, R3 = epoxypropane, r = 1 or 2, at least one R ≠ H, and R1 = Ph or N(R)2. Thus, 126 g melamine and 240 g 37% formaldehyde aqueous solution were reacted in methanol at 60°, 282 g phenol and 1.3 g HCl were added and reacted at 80° to give 409 g OH and Ph group-containing triazine with N content 20.5%, 100 g of which was reacted with epichlorohydrin at 70° under 200 mmHg pressure in the presence of NaOH to give 138 g fire-resistant epoxy resin with N content 14.9% and epoxy equivalent 205 g/equivalent A composition comprising CNE 200ELB 10.34, the resulting fire-resistant epoxy resin 6.00, PF 5110 7.80, triphenylphosphine 0.26, silane coupling agent 0.60, fused silica 74.00, carbon black 0.40, and carnauba wax 0.60 parts showed spiral flow (EMMI-1-66) 75 cm, flame retardance (UL 94) V-0, moisture absorption (100° for 24 h) 0.28%, and good solder heat resistance.

L28 ANSWER 25 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:196349 HCAPLUS Full-text
DOCUMENT NUMBER: 138:206214
TITLE: Fire-resistant epoxy resin prepreg composite laminates with high tracking resistance
INVENTOR(S): Hayai, Hiroshi; Kitano, Hideki
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003072011	A	20030312	JP 2001-265206	20010903 <--
PRIORITY APPLN. INFO.:			JP 2001-265206	20010903 <--

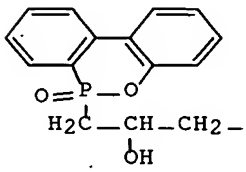
ED Entered STN: 12 Mar 2003
AB The laminates for elec. and electronic devices, are obtained by resp. impregnating glass woven fabrics and glass nonwoven fabrics with epoxy resins, drying the fabrics to give prepregs, combining and laminating the prepregs, and hot-press-molding the assembled laminates. The intermediate layers of the laminates are made of glass nonwoven fabrics impregnated with compns. containing (A) novolak epoxy resins, (B) triazine-modified phenolic novolak resin hardeners, (C) reactive P-containing flame retardants, and (D) inorg. fillers of Al(OH)3 and/or Mg(OH)2 to satisfy (epoxy number of A)/(OH number of B) ratio 0.8-1.4, P content in C based on 100 parts of A + B + C 0.5-5 parts, and D content based on 100 parts of A + B + C 100-250 parts. The surface layers of the laminates are made of glass woven fabrics impregnated with P- or P compound-free nonbrominated epoxy resin-based compns. containing 10-200 parts (based on 100 parts resins in the surface layers) of Al(OH)3 and/or Mg(OH)2. Thus, 3 prepregs [prepared by impregnating glass nonwoven fabrics with a varnish containing Epiclon N 770 (phenolic novolak epoxy resin), LA 7054 (triazine-modified phenolic novolak resin), HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide), Al(OH)3, Mg(OH)2, and a catalyst and drying] were stacked, sandwiched between 2 prepregs [prepared by impregnating glass woven fabrics with a varnish containing Ep 850 (bisphenol A epoxy resin), dicyandiamide, Al(OH)3 and a catalyst and drying], further sandwiched between 2 Cu foils, and hot-pressed to give a Cu-clad laminate showing UL-94 fire resistance V-0 and good tracking resistance.

L28 ANSWER 26 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:147995 HCAPLUS Full-text
DOCUMENT NUMBER: 138:188664
TITLE: Fire-resistant epoxy resins containing phosphorus and fire-resistant resin compositions thereof
INVENTOR(S): Huang, Kun-Yuan; Chen, Hung-Hsing; Tu, An-Pang
PATENT ASSIGNEE(S): Changchun Synthetic Resin Co., Ltd., Taiwan; Chang Chun Plastics Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003055436	A	20030226	JP 2001-248083	20010817 <--
JP 3659908	B2	20050615		

PRIORITY APPLN. INFO.: JP 2001-248083 20010817 <--
ED Entered STN: 27 Feb 2003
GI



I

AB Title resins contain phosphoric groups I prepared by reacting epoxy resins with 9,10-dihydro-9-oxa-10-phosphanthracene-10-oxo compound Thus, 1000 parts CNE 200ELB (cresol resin polyglycidyl ether with epoxy equivalent 200-220 g/equiv) and 320 parts Dopo (6H-dibenz[c,e][1,2]oxaphosphorin, 6-oxide) were stirred at 180° for 3 h in the presence of ethyltriphenylphosphonium acetate catalyst to give a phosphorous-containing epoxy resin with epoxy equivalent 453 g/equiv, P content 3.48%, and solid content 59.8%, 150 parts of which was mixed with BE 501 epoxy resin with epoxy equivalent 490-510 g/equiv 153, Melan 9000 65, and 10% 2-methylimidazole 1.8 parts to give a varnish, a glass fiber was impregnated therewith and dried at 150° for 120 min to give a prepreg with glass transition temperature 191.8° and average combustion time 2-3 s, 8 of the resulting prepregs were pressed at 185° and 25 kg/cm2, showing good flame and weldability resistance, peeling off strength 8.9 lb/in, surface resistance 2.68 + 1015 Ω, volume resistance 0.89 + 1013 Ω, dielectricity 4.7, and dissipation coefficient 0.022.

L28 ANSWER 27 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:68847 HCAPLUS Full-text
DOCUMENT NUMBER: 138:138407
TITLE: Halogen-free adhesive compositions and their uses in flexible printed circuit board substrates and cover-lay films

INVENTOR(S): Nakanishi, Toru; Shima, Yukio; Eikuchi, Yoshiji; Ichiroku, Nobihiro; Shiohara, Toshio
PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003027028	A	20030129	JP 2001-214408	20010713 <--
PRIORITY APPLN. INFO.:			JP 2001-214408	20010713 <--

ED Entered STN: 29 Jan 2003
AB The compns. with balanced adhesion, flexibility, and elec. properties and high resistance to fire, heat, migration, etc., comprise P-containing epoxy resins 100, P-free epoxy resins 10-300, butyral resins 10-400, phenolic resins 100-400, reactive P-containing compds. 10-200, copolymers prepared by reacting aromatic polymers with polysiloxanes shown as RaR'bSiO(4-a-b)/2 [R = H, amino, epoxy, OH, carbonyl-containing hydrocarbyl, alkoxy; R' = (un)substituted hydrocarbyl; a = 0.001-1; b = 1-2; a + b = 1-3; Si atom number in one mol. 2-1000; number of R direct-bonded to Si in one mol. ≥1] 10-100, and curing accelerators 1-50 parts. In the title substrates, elec. insulating films and metal foils are bonded through the compns. In the title films, elec. insulating films and release sheets are laminated through the compns. Thus, a solution containing EXA 9710 (P-containing epoxy resin), HP 4032 (naphthalene-type bifunctional epoxy resin), S-Lec KS 1 (butyral resin), LA 7054 (triazine-type phenolic resin), HCA (reactive P-containing flame retardant), siloxane copolymer shown as [C6H3(OG)CH2]19[C6H3OACH2]1[C6H3OA'CH2]1[C6H3(OG)CH2]19 {G = glycidyl; A and A' are linked through CH2CH(OH)CH2O(CH2)3SiMe2O(SiMe2O)58SiMe2(CH2)3OC H2CH(OH)CH2}, 2E-4MZ-CN (imidazole curing accelerator), and additives was applied on Kapton (polyimide film), heated for half-curing, press-bonded with BHN (Cu foil), and heat-cured to give a flexible printed circuit board substrate showing peeling strength 12 N/cm and good solder heat resistance.

L28 ANSWER 28 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:34931 HCAPLUS Full-text
DOCUMENT NUMBER: 138:91011
TITLE: Phosphine-modified epoxy resin compositions with high flame retardancy for glass-epoxy prepregs
INVENTOR(S): Moriyama, Hiroshi
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003012765	A	20030115	JP 2001-198520	20010629 <--
PRIORITY APPLN. INFO.:			JP 2001-198520	20010629 <--
OTHER SOURCE(S):	MARPAT 138:91011			

ED Entered STN: 15 Jan 2003
AB The compns. comprise (i) oxazolidone ring-containing epoxy resins, (ii) epoxy resins modified with phosphine compds. which have aromatic rings on P atoms,

and (iii) curing agents. Thus, Epiclon 840S (bisphenol A epoxy resin) was reacted with Millionate MT-F at 150° for epoxy equiv 245 g/equiv, blended with 9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide-modified Epiclon 830S (bisphenol F epoxy resin), dicyandiamide, 2E4MZ, and MEK, and infiltrated in WEA 7628H 258N (glass cloth) to give a prepreg, 8 layers of which were laminated and hot pressed to give a laminate showing interlayer peeling strength 2.2 kN/m, UL 94 fire resistance rating V0, and good solder resistance after 2-h pressure cooker test.

L28 ANSWER 29 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:921414 HCAPLUS Full-text
DOCUMENT NUMBER: 138:5357
TITLE: Prepreg made of epoxy resin-impregnated organic fiber substrate and laminated board
INVENTOR(S): Ishida, Takehiro; Takada, Toshiharu
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002348392	A	20021204	JP 2001-159105	20010528 <--
PRIORITY APPLN. INFO.:			JP 2001-159105	20010528 <--

ED Entered STN: 04 Dec 2002
AB The prepreg is that obtained by impregnation of an organic fiber substrate with a composition of a P-containing epoxy resin, a hardener for epoxy resin, and a imdazolesilane as a surface treatment. The laminated board, preferably a metal-clad laminated board as printed circuit board with fire resistance and good laser processability (compared with prepregs using glass fibers), is that prepared by hot pressing of the prepreg. Thus, 9,10-dihydro-9-oxa- 10-phosphaphenanthrene (HCA) and cresol novolak epoxy resin (YDCN 701) were reacted to give P-containing epoxy resin, 100 parts of which was mixed with 39 parts bisphenol A novolak resin (Epicure YLH 129) and 1.0 part imidazolesilane (IS 1000) and dissolved in MEK to give a varnish. Then, all aromatic aramid nonwoven fabrics were impregnated with the varnish to give the prepregs, 8 of which were laminated, sandwiched between a pair of Cu foils, and hot-pressed to give a Cu-clad laminated board showing UL-94 flame retardance V-0 and blister in heating to 270°.

L28 ANSWER 30 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:847823 HCAPLUS Full-text
DOCUMENT NUMBER: 137:338640
TITLE: Halogen-free fire- and heat-resistant epoxy resin compositions and their manufacture
INVENTOR(S): Moriyama, Hiroshi
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 2002322241	A	20021108	JP 2001-129271	20010426 <--
PRIORITY APPLN. INFO.:			JP 2001-129271	20010426 <--

OTHER SOURCE(S): MARPAT 137:338640
ED Entered STN: 08 Nov 2002
AB The compns., useful for multilayer printed circuit boards, comprise (A) P-modified epoxy resins, which are manufactured by reacting epoxy resins with isocyanates (forming oxazolidone rings) and further reacting with phosphines having aromatic groups on P, and (B) curing agents. Thus, bisphenol A epoxy resin (Epiclon 840S) was reacted with MDI (Milionate MT-F), further reacted with 9,10-dihydro-9-oxa-10-phosphaphenanthren-10- oxide, mixed with dicyandiamide, impregnated into glass fabrics, laminated, and hot-pressed to give a laminate showing interlayer delamination strength 2.5 kN/m, UL 94 fire resistance rating V0, Tg 165°, and moisture absorption 0.65%.

L28 ANSWER 31 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:672320 HCAPLUS Full-text
DOCUMENT NUMBER: 137:218003
TITLE: Phosphorus-containing epoxy resin compositions and their sheets and prepregs with good heat and fire resistance
INVENTOR(S): Kakiuchi, Hidetaka; Sagara, Takashi
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002249552	A	20020906	JP 2001-49168	20010223 <--
PRIORITY APPLN. INFO.:			JP 2001-49168	20010223 <--

ED Entered STN: 06 Sep 2002
AB The compns. comprise (A) P-containing epoxy resins prepared from (a) P-containing organic compds. prepared by reaction of quinones with 1.01-2 mol (based on 1 mol quinone) P compds. having active H connected to P and (b) 20-45% epoxy resins chosen from G(OZOCH2CHOHCH2)mOXOG, G(OYOCH2CHOHCH2)nOYOG, and G(OZXZOCH2CHOHCH2)lOZXZOG [Z = (phenyl-substituted) phenylene; Y = (phenyl-substituted) naphthalene; G = glycidyl; X = CH2, O, CO, SO2, S, CH(C8H6), C(C8H6)2, single bond, fluorene; m, n, l ≥0] and (B) triazine-modified novolak resins as crosslinking agents. Thus, glass cloth (H 258) was impregnated with a composition containing (a) 1000 parts a reaction product of HCA, 1,4-naphthoquinone, EPPN 501H, Epotohto YDG 414, Epotohto ZX 1027 (epoxy resins), (b) 321.3 parts triazine-modified novolak resin (LA 7054) and heated to give prepregs, which were laminated, sandwiched between Cu foils, hot-pressed, and made into a printed circuit board with improved adhesion and UL-94 rating V-0.

L28 ANSWER 32 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:672305 HCAPLUS Full-text
DOCUMENT NUMBER: 137:202064
TITLE: Fire-resistant phosphorus-containing epoxy resin compositions
INVENTOR(S): Ishihara, Kazuo; Asano, Kazuaki
PATENT ASSIGNEE(S): Toto Kasei K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF

DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

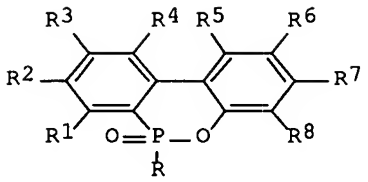
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002249540	A	20020906	JP 2001-48375	20010223 <--

PRIORITY APPLN. INFO.: JP 2001-48375 20010223 <--
ED Entered STN: 06 Sep 2002
AB The compns. with P content ≥1 and <4% contain (A) 100 parts P-containing epoxy resins obtained by reaction of (a) 1:<1 (mol) P compound-quinone reaction products with (b) epoxy resins having ≥2 epoxy groups in a mol., (B) 0-40 parts epoxy resins having ≥2 epoxy groups in a mol., and (C) curing agents. Thus, reaction products of 155 parts 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide with 82.8 parts 1,4-naphthoquinone were further reacted with 762.2 parts Epo Tohto YDPN 638 (epoxy resin) to give P-containing epoxy resins with P content 2.2%, 72 parts of which was blended with EPPN 501H 22, HCA-HQ [10-(2,5- dihydroxyphenyl)-10H-9-oxa-10-phosphaphenanthrene-10-oxide] 6, DICY (curing agent) 3.24, and 2E4MZ (curing accelerator) 0.01 part to give a varnish. WEA 7628-XS13 (glass fiber fabric) was impregnated with thus obtained varnish to give prepreg, 4 pieces of which were laminated, covered with 3EC (Cu foil), and hot-pressed to give a laminated board with UL test V-0, peeling strength of the Cu foil 1.6 kg/cm, interlayer adhesion strength 1.1 kg/cm, moisture absorption 0.9%, Tg 170°, and no Br release.

L28 ANSWER 33 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:514299 HCAPLUS Full-text
DOCUMENT NUMBER: 137:94592
TITLE: Preparation of 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide derivatives with low crystallizability
INVENTOR(S): Kunitomo, Hideo; Azuma, Hiroshi; Kage, Takakazu
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002193985	A	20020710	JP 2000-394836	20001226 <--

PRIORITY APPLN. INFO.: JP 2000-394836 20001226 <--
OTHER SOURCE(S): MARPAT 137:94592
ED Entered STN: 10 Jul 2002
GI



I

AB The derivs. I [R = CH2X; R1-R8 = H, CH2O(CH2O)mH; X = group represented by eliminating CH2X from I, O(CH2O)nH; m, n = 0-5; if R1-R8 = all H, then n = 1-5], which are useful as materials for flame-retardant polymers and as flame-retardant oligomers (no data) and convenient to be blended with various polymers because of their low crystallizability, are claimed. P-containing compds. having the similar application are prepared by treating I (R = H; R1-R8 = H, C1-10 alkyl, cyclohexyl, C1-10 alkenyl, C1-10 alkylidene, Ph) with HCHO.

L28 ANSWER 34 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:423921 HCAPLUS Full-text
DOCUMENT NUMBER: 137:7191
TITLE: Nonhalogen fire- and heat-resistant epoxy prepregs and laminates
INVENTOR(S): Ishida, Takehiro; Takada, Toshiharu
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002161151	A	20020604	JP 2000-359234	20001127 <--
PRIORITY APPLN. INFO.:			JP 2000-359234	20001127 <--

ED Entered STN: 05 Jun 2002
AB Impregnating varnishes contain epoxy resins, hardening agents, Al hydroxide, inorg. fillers coated with molybdic acid metal salts, and organic solvents. Thus, a varnish contained a P-containing epoxy resin (a reaction product of HCA with 1,4-naphthoquinone and Epo Tohto YDCN 701) 100, TD 2131 20, Al hydroxide 60, Zn molybdate-coated talc 2, and solvent 100 parts and was used to impregnate glass cloths.

L28 ANSWER 35 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:305787 HCAPLUS Full-text
DOCUMENT NUMBER: 136:326357
TITLE: Halogen-free fire-resistant acrylic polymer compositions
INVENTOR(S): Nishiguchi, Shoji
PATENT ASSIGNEE(S): Showa Highpolymer Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002121245	A	20020423	JP 2000-315099	20001016 <--

PRIORITY APPLN. INFO.: JP 2000-315099 20001016 <--
OTHER SOURCE(S): MARPAT 136:326357
ED Entered STN: 23 Apr 2002
AB The compns., having P content of 0.5-10%, contain (A) compds. manufactured from compds. bearing ≥2 (meth)acryl groups and compds. bearing active H directly bonded to ≥1 P atoms at equivalent ratio of the active H to the (meth)acryloyl group 0.1-0.7 and (B) photo or thermal initiators. The compns. are useful for elec. insulators for elec. circuit boards and electronic parts, solder resists, electronic packaging materials, etc. Thus, 296 parts trimethylolpropane trimethacrylate was reacted with 108 parts HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide), mixed with 3 parts benzoyl peroxide, and cured by heat to give a test piece showing fire resistance (UL 94 test) V-0.

L28 ANSWER 36 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:264919 HCAPLUS Full-text
DOCUMENT NUMBER: 136:295584
TITLE: Manufacture of phosphorus-modified fireproofing epoxy resins and their compositions
INVENTOR(S): Moriyama, Hiroshi; Takahashi, Yoshiyuki
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002105167	A	20020410	JP 2000-294107	20000927 <--

PRIORITY APPLN. INFO.: JP 2000-226952 A 20000727 <--
OTHER SOURCE(S): MARPAT 136:295584
ED Entered STN: 10 Apr 2002
AB The compns., useful for electronic packaging materials, printed circuit boards, etc., comprise P-modified epoxy resins, which are prepared by reaction of epoxy resins with unsatd. monobasic acids and then phosphine compds. having aromatic groups connected to P or prepared by reaction of the unsatd. monobasic acids with the phosphine compds. and then epoxy resins, and crosslinking agents. Thus, glass cloth (WEA 7628-H258N) was impregnated with a varnish containing a modified epoxy resin [prepared by reaction of cresol novolak epoxy resin (Epiclon N 660) with acrylic acid and 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide], dicyandiamide, a crosslinking catalyst, and MEK and dried to give prepregs, 8 of which were laminated and hot-pressed to give a laminate with improved adhesion, UL-94 rating V-0, and good heat moisture resistance.

L28 ANSWER 37 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:233123 HCAPLUS Full-text
DOCUMENT NUMBER: 136:264178
TITLE: Phosphorus derivatives modified epoxy-based flame retardant prepregs useful for printed circuit board

laminates
INVENTOR(S): Ishida, Takehiro; Takada, Toshiharu
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002088175	A	20020327	JP 2000-280660	20000914 <--
PRIORITY APPLN. INFO.:			JP 2000-280660	20000914 <--

ED Entered STN: 27 Mar 2002
AB The halogen free prepregs are obtained by impregnating an epoxy resin (A) in organic fibers, e.g., polyamide nonwoven fabrics, then cured and are capable of drilling with laser radiation, wherein A contains 1-20% organic or inorg. phosphorus compound and 10-60% inorg. filler. The title laminates are obtained by hot-pressing the prepregs with copper foils.

L28 ANSWER 38 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:207549 HCAPLUS Full-text
DOCUMENT NUMBER: 136:248723
TITLE: Highly heat- and fire-resistant resin compositions and parts processed therefrom
INVENTOR(S): Tahara, Shuji; Yasuda, Kiyomi; Suzuki, Terufumi
PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002080565	A	20020319	JP 2000-272486	20000908 <--
PRIORITY APPLN. INFO.:			JP 2000-272486	20000908 <--

ED Entered STN: 20 Mar 2002
AB Resin compns. contain adducts of polyfunctional epoxy resins with P compds. and curing agents, which contain acid-catalyzed reaction products of heavy oil or pitch with phenols and HCHO and/or polyhydric phenols. Thus, VG 3101 350, YH 434 300, HCA 150 parts, and 100 ppm Ph3P were heated at 150° for 5 h, mixed with MEK to 80%, mixed (125 parts) with NC 3000P 50, FPI 5531 147, 2-ethyl-4-methylimidazole 0.5, and MEK 175 parts, used to impregnate glass cloths, and cured.

L28 ANSWER 39 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:98588 HCAPLUS Full-text
DOCUMENT NUMBER: 136:136002
TITLE: Phosphorus-containing fireproofing epoxy resin compositions, their films, prepregs, and laminates for high-density printed circuit boards with reliable insulation
INVENTOR(S): Ogasawara, Kenji; Kashiwabara, Keiko; Fujiwara, Hiroaki; Matsumoto, Takakage
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002037857	A	20020206	JP 2000-229468	20000728 <--

PRIORITY APPLN. INFO.: JP 2000-229468 20000728 <--
ED Entered STN: 06 Feb 2002
AB The compns. comprise curing agents and reaction products of epoxy resins and P compds. containing 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (I), wherein the content of P derived from I is ≥0.3% (based on the total weight of the curing agents and the reaction products) and the content of an impurity 10-hydroxy-9,10-dihydro-9-oxa-10-phosphaphenanthrene-10- oxide (II) in the P compds. is ≤100 ppm. Thus, an epoxy resin GlyOQ[CH(QOGly)X(OGly)]nCH(QOGly)QOGly (EPPN 502H; Q = phenylene; X = C6H3; n ≥0) was reacted with I (assay 99.6%, II content 0.4%), mixed with bisphenol A epoxy resin (Epiclon 850S) and dicyandiamide, cast into a film, laminated with a Cu-clad laminate, and heated to give a test piece showing good insulation properties at 20 V for at least 150 h.

L28 ANSWER 40 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:98583 HCAPLUS Full-text
DOCUMENT NUMBER: 136:151999
TITLE: Flame-retardant phosphorus-containing epoxy resins, their preparation, compositions, cured products, and uses
INVENTOR(S): Huang, Kun-yuan; Chen, Hung-hsing; Tu, An-pang; Chao, Huan-chang
PATENT ASSIGNEE(S): Changchun Synthetic Resin Co., Ltd., Taiwan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002037852	A	20020206	JP 2001-54467	20010228 <--
JP 3476780	B2	20031210		
TW 498084	B	20020811	TW 2000-89114433	20000719 <--
US 2002032279	A1	20020314	US 2001-794835	20010227 <--
US 7064157	B2	20060620		

PRIORITY APPLN. INFO.: TW 2000-89114433 A 20000719 <--
ED Entered STN: 06 Feb 2002
AB P-containing epoxy resins are prepared by reaction of 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (HCA) with compds. bearing reactive CO groups, condensation of the products with phenols and organic acids, and reaction of the resulting P-containing compds. R1Ar1CHR2Ar2R1 [R1 = OH, NH2, SH, CO2H, SO3H, COH, NHCOMe; R2 = 6-oxido-6H-dibenz[c,e][1,2]oxaphosphorin- 6-yl; Ar1, Ar2 = (substituted) aromatic group] with epoxy resins or epihalohydrins. Flame-retardant compns. containing the P-containing epoxy resins, halogen-free curing agents, and curing accelerators are useful for adhesive sheets, composite materials, laminated sheets, printed circuit boards, substrates for

lamination, adhesives for Cu foils, and sealants for semiconductors. Thus, reaction of HCA with 4-hydroxybenzaldehyde and reaction of the resulting P compound with BE 188EL (novolak polyglycidyl ether) gave a P-containing epoxy resin. A glass fiber fabric was impregnated with a varnish containing the P-containing epoxy resin, dicyandiamide, and 2-methylimidazole to give a prepreg showing Tg 157° and good flame retardance.

L28 ANSWER 41 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:63666 HCAPLUS Full-text
DOCUMENT NUMBER: 136:119497
TITLE: Halogen-free fire-resistant adhesive composition for making flexible printed circuit boards and related products
INVENTOR(S): Maesawa, Hideki
PATENT ASSIGNEE(S): Toshiba Chemical Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002020715	A	20020123	JP 2000-209197	20000711 <--
PRIORITY APPLN. INFO.:			JP 2000-209197	20000711 <--

OTHER SOURCE(S): MARPAT 136:119497
ED Entered STN: 23 Jan 2002
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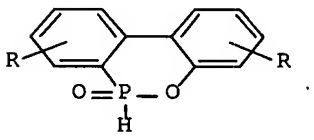

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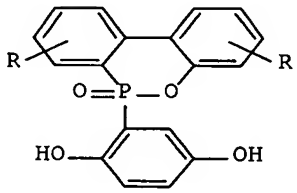


II

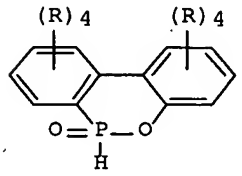
AB Title adhesive composition comprises (A) a P-containing epoxy resin having compound I or II as reaction component (R = H, non-halogen substitute), (B) a curing agent for epoxy resin, (C) an inorg. filler, and (D) synthetic rubber. A polyimide-copper foil laminate prepared by using the adhesive, a cover lay made by forming the adhesive resin layer on a polyimide film, an adhesive film, a flexible printed circuit board made by using the adhesive are also claimed.

L28 ANSWER 42 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:36598 HCAPLUS Full-text
DOCUMENT NUMBER: 136:86987
TITLE: Fire-resistant phosphorus-containing epoxy resin

compositions and their uses
INVENTOR(S): Asano, Toyofumi; Imaizumi, Masahiro; Shinmoto, Akishige
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002012740	A	20020115	JP 2000-197149	20000629 <--

PRIORITY APPLN. INFO.: JP 2000-197149 20000629 <--
ED Entered STN: 15 Jan 2002
GI



I

AB The compns., useful for electronic packaging materials, Cu-clad laminates etc., comprise (A) P-containing epoxy resins (P content 0.8-8%) prepared by reaction of curable epoxy resins with P compds. I (R = H, aliphatic group, aromatic group), (B) curing agents, and (C) block copolymers prepared from aminoaryl-terminated phenolic OH-containing aromatic polyamide oligomers and carboxy-terminated butadiene-acrylonitrile copolymers. Thus, a glass cloth (WEA 7628 XS13) was impregnated with a varnish containing a P-containing epoxy resin [prepared from EOCN 1020 (cresol novolak epoxy resin), bisphenol A, and HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide)] 100.0, dicyandiamide 3.52, 2E4MZ (2-ethyl-4-methylimidazole) 0.05, and a block copolymer [prepared from 5-hydroxyisophthalic acid-isophthalic acid-3,4'-oxydianiline oligomer and carboxy-terminated butadiene-acrylonitrile copolymer (Hycar CTBN)] 30.0 parts and dried to give a prepreg, 8 pieces of which was laminated and hot-pressed to give a laminated board with Tg 142°, fire resistance (UL 94) V-0, improved adhesion, and good bending crack resistance.

L28 ANSWER 43 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:35880 HCAPLUS Full-text
DOCUMENT NUMBER: 136:86963
TITLE: Fire-resistant phosphorus-containing epoxy resin compositions and their uses
INVENTOR(S): Asano, Toyofumi; Imaizumi, Masahiro; Shinmoto, Akishige
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

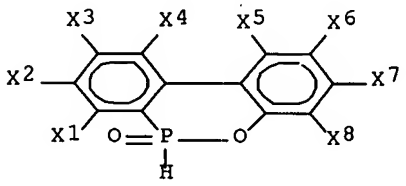
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002012739	A	20020115	JP 2000-197055	20000629 <--

PRIORITY APPLN. INFO.: JP 2000-197055 20000629 <--
ED Entered STN: 15 Jan 2002
AB The compns., useful for electronic packaging materials, Cu-clad laminates etc., comprise (A) P-containing epoxy resins prepared by reaction of (a) epoxy resins containing ≥20% novolak epoxy resins and (b) active H-containing organic P compds. prepared from quinones and organic P compds. having an active H bonded to P with a mol ratio of the quinones to the organic P compds. (x) 0 < x < 1, (B) curing agents, and (C) block copolymers prepared from aminoaryl-terminated phenolic OH-containing aromatic polyamide oligomers and carboxy-terminated butadiene-acrylonitrile copolymers. Thus, a glass cloth (WEA 18W105F115N) was impregnated with a varnish containing a P-containing epoxy resin [prepared from HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide), 1,4-naphthoquinone, and EPPN 201L (phenolic novolak epoxy resin)] 100.0, dicyandiamide 3.21, 2E4MZ (2-ethyl-4-methylimidazole) 0.01, and a block copolymer [prepared from 5-hydroxyisophthalic acid-isophthalic acid-3,4'-oxydianiline oligomer and carboxy-terminated butadiene-acrylonitrile copolymer (Hycar CTBN)] 30.0 parts and dried to give a prepreg, 8 pieces of which was laminated and hot-pressed to give a laminated board with Tg 139°, fire resistance (UL 94) V-0, improved adhesion, and good bending crack resistance.

L28 ANSWER 44 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:837029 HCAPLUS Full-text
DOCUMENT NUMBER: 135:358960
TITLE: Alkali- and fire-resistant epoxy resin compositions containing hydroxaphosphaphenanthrenoxides
INVENTOR(S): Akimoto, Koji; Ogawa, Akira; Waki, Koji
PATENT ASSIGNEE(S): Asahi Denka Kogyo K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001316568	A	20011116	JP 2000-131246	20000428 <--

PRIORITY APPLN. INFO.: JP 2000-131246 20000428 <--
ED Entered STN: 19 Nov 2001
GI



I

AB The compns., producing halogen-free combustion products, comprise (addition products of) polyepoxy compds. GyAZA(OCH2C(OX)HCH2OAZA)nGy (Gy = glycidoxy; A = p-C6H4; Z = single bond, C1-4 alkylidene, SO2; X = H, glycidyl, where ≥10% of X is glycidyl; n = 0.1-20) and sp. hydroxaphosphaphenanthrenoxides I (X1-8 = H, halo, alkyl, aryl). The compns. are useful for coatings, adhesives, electronic packages, etc. Thus, 475 parts bisphenol A diglycidyl ether (epoxy equiv 475) and 925 parts epichlorohydrin were reacted at 50-60° in the presence of tetramethylammonium chloride and NaOH to give a polyepoxy compound with epoxy equiv 265, 100 parts of which was reacted with 20 parts HCA (9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide) at 120-140° in the presence of Ph3EtP+Br- to give a reaction product with epoxy equiv 425 and P content 2.5%. A specimen from the above reaction product 100, dicyandiamide 4, and 2-ethyl-4-Me imidazole 0.1 part showed UL 94 fire resistance rating V0, Tg 135°, and excellent alkali resistance.

L28 ANSWER 45 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:747180 HCAPLUS Full-text
DOCUMENT NUMBER: 135:289613
TITLE: Flame retardant epoxy resin compositions containing phosphorus for prepregs, laminated boards, and multilayer boards
INVENTOR(S): Sagara, Takashi; Takata, Toshiharu; Ihara, Kiyoaki; Kakiuchi, Hidetaka; Ishihara, Kazuo; Asano, Chiaki; Gunji, Masao; Sato, Hiroshi
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan; Tohto Kasei Co., Ltd.
SOURCE: Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1142921	A1	20011010	EP 2000-126572	20001212 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001288247	A	20011016	JP 2000-104284	20000406 <--
TW 555809	B	20031001	TW 2000-89121178	20001011 <--
US 6524709	B1	20030225	US 2000-688033	20001012 <--
CN 1316463	A	20011010	CN 2000-137311	20001130 <--
CN 1737056	A	20060222	CN 2005-10099910	20001130 <--
HK 1040410	A1	20060728	HK 2002-101848	20020311 <--
US 2003162935	A1	20030828	US 2003-359205	20030206 <--
US 6933050	B2	20050823		

PRIORITY APPLN. INFO.:
JP 2000-104284 A 20000406 <--
US 2000-688033 A1 20001012 <--
CN 2000-137311 A3 20001130 <--

ED Entered STN: 12 Oct 2001

AB Phosphorus containing epoxy resin compns. comprise an epoxy resin composition (a) in which a phosphorus containing epoxy resin (A) and a hardener are contained, wherein the the phosphorus containing epoxy resin (A) is a phosphorus containing resin composition prepared by reacting phosphorus containing organic compds. (B) obtained by the reaction of 1.01-2 mol of organic phosphorus compds. (b) having one active hydrogen atom bonded to phosphorus atom and 1 mol of quinone compound with at least one kind of epoxy resins (C) so as the content of the epoxy resins (C) is 20-45%. An epoxy

resin was prepared by reaction of HCA, 1,4-naphthoquinone, EPPN-501H, Epotohto YDG-414, and Epotohto ZX-1027.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 46 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:709932 HCAPLUS Full-text
DOCUMENT NUMBER: 135:280497
TITLE: Radiation-curable nonhalogen epoxy resin compositions with excellent flame retardancy and resists therefrom
INVENTOR(S): Sekiguchi, Naoshi; Ichinose, Hidekazu; Ishikawa, Hidenobu
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001264976	A	20010928	JP 2000-72131	20000315 <--
PRIORITY APPLN. INFO.:			JP 2000-72131	20000315 <--

ED Entered STN: 28 Sep 2001
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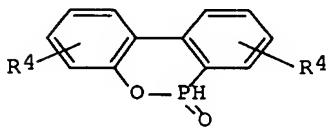


I

AB The compns., suited for manufacture of color filters, protective layers, solder resists, etc., comprise reaction products of (A) carboxyl-bearing ethylenic compds. and (B) P compds. reactive with A. The P compds. may be O:PR1R2R3 [R1 = H, OH; R2 = (un)saturated organic group residue, OH; R3 = (un)saturated organic group residues] or I (R = H, monofunctional aliphatic or aromatic group). Also claimed are radiation-sensitive resists composed of above compns., epoxy resins, reactive diluents, and photopolymn. initiators.

L28 ANSWER 47 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:690106 HCAPLUS Full-text
DOCUMENT NUMBER: 135:243059
TITLE: Phosphorus-containing dihydric phenol or naphthol-advanced epoxy resin or cured epoxy resin
INVENTOR(S): Wang, Chun-shan; Shieh, Jeng-yueh
PATENT ASSIGNEE(S): National Science Council, Taiwan
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: **Patent**
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6291626	B1	20010918	US 1999-261884	19990303 <--
TW 528769	B	20030421	TW 1998-87109911	19980619 <--
US 6291627	B1	20010918	US 1999-437985	19991110 <--
JP 2002060460	A	20020226	JP 2000-245383	20000811 <--
JP 3484403	B2	20040106		
US 2001003771	A1	20010614	US 2001-757900	20010110 <--
US 2002035233	A1	20020321	US 2001-950468	20010910 <--
US 6646064	B2	20031111		

PRIORITY APPLN. INFO.:
TW 1998-87109911 A 19980619 <--
US 1999-261884 A2 19990303 <--
TW 1999-88106160 A 19990416 <--
US 1999-437985 A2 19991110 <--

ED Entered STN: 20 Sep 2001
AB Flame-retardant advanced epoxy resins and cured epoxy resins contain a rigid phosphorus group emanating from a dihydric phenol or naphthol which provides thermal and flame retardant properties. The advanced epoxy resins are suitable for making a fiber-reinforced epoxy resin composite which is useful in the fabrication of printed circuit boards. The cured epoxy resins can be used in semiconductor encapsulation applications. Thus, slowly heating 2-(2-hydroxyphenyl)phenylphosphonic acid to its molten state (106°) under full vacuum for dehydration, then increasing the temperature slowly from 106° to 160° until the dehydration was complete gave DOPO (9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide) (yield 93%) with m.p. 119-120°, 216 g of which was mixed with 500 mL PhMe, heated to 70°, stirred, heated to 90° with stirring until DOPO was dissolved completely, then combined with 97 g 1,4-benzoquinone, then heated to 110° and maintained at that temperature for 2 h to give 2-(6-oxido-6H- dibenz<c,e><1,2>oxaphosphorin-6-yl)-1,4-benzenediol (DOPO-BQ). Heating a bisphenol A diglycidyl ether polymer with DOPO-BQ and curing with methylenedianiline gave a cured product having maximum thermal degradation temperature, char yield and Tg higher than a similar composition using bisphenol A in place of DOPO-BQ.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 48 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:687471 HCAPLUS Full-text
DOCUMENT NUMBER: 135:243099
TITLE: Epoxy resin rendered flame retardant by reaction with 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide
INVENTOR(S): Wang, Chun-Shan; Lin, Ching Hsuan
PATENT ASSIGNEE(S): National Science Council, Taiwan
SOURCE: U.S., 9 pp., Cont.-in-part of U.S. 6,291,626.
CODEN: USXXAM
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6291627	B1	20010918	US 1999-437985	19991110 <--
US 6291626	B1	20010918	US 1999-261884	19990303 <--
TW 438833	B	20010607	TW 1999-88106160	19990416 <--
US 2001003771	A1	20010614	US 2001-757900	20010110 <--

PRIORITY APPLN. INFO.:
US 1999-261884 A2 19990303 <--

TW 1999-88106160 A 19990416 <--
TW 1998-87109911 A 19980619 <--
US 1999-437985 A2 19991110 <--

ED Entered STN: 20 Sep 2001
AB A flame-retardant epoxy resin is prepared by reacting an active-hydrogen-containing phosphorus compound of 9,10-dihydro-9-oxa-10- phosphaphenanthrene 10-oxide with a di- or poly-functional epoxy resin via an addition reaction between the active hydrogen and the epoxide group. A cured epoxy resin therefrom has good mech., thermal, flame retardant properties (no fume or dripping in a combustion test) and is suitable for printed circuit board and semiconductor encapsulation applications.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 49 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:554808 HCAPLUS Full-text
DOCUMENT NUMBER: 135:123668
TITLE: Radically polymerizable flame-retardant vinyl ester-containing resin compositions
INVENTOR(S): Kimura, Hitoshi; Ogasawara, Kenji; Uno, Yoshinori; Yamazaki, Isahide
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan; Nippon Shokubai Kagaku Kogyo Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001206927	A	20010731	JP 2000-20736	20000128 <--

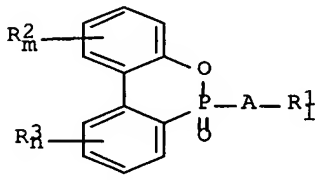
PRIORITY APPLN. INFO.: JP 2000-20736 20000128 <--
ED Entered STN: 01 Aug 2001
AB The compns. contain vinyl esters prepared by reaction of epoxy compds. [containing novolak epoxy resins and glycidyl (meth)acrylate], (aliphatic group- and/or aromatic group-substituted) 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide, and (meth)acrylic acid. Thus, a composition (P content 3.0%) containing a vinyl ester [prepared by reaction of Araldite EPN 1179 (novolak epoxy resin), glycidyl methacrylate, HCA (9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide), and methacrylic acid in the presence of PPh3 and hydroquinone], styrene, and acrylic acid was mixed with Al(OH)3 and Percumyl H 80 (hardener) to give a varnish. Two sheets of glass paper were impregnated with the varnish, sandwiched between 2 glass fabrics impregnated with the varnish, laminated on both sides with Cu foils, and thermally cured to give a Cu-clad laminate showing UL-94 flame retardance rating V-0, good solder heat resistance, and peel strength.

L28 ANSWER 50 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:545767 HCAPLUS Full-text
DOCUMENT NUMBER: 135:123607
TITLE: Fireproof polyester films
INVENTOR(S): Shimizu, Minako; Ito, Katsuya; Oda, Naonobu; Takeuchi, Hideo; Kumano, Katufumi; Yamaguchi, Shinsuke
PATENT ASSIGNEE(S): Toyo Boseki Kabushiki Kaisha, Japan
SOURCE: PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DOCUMENT TYPE: **Patent**

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2001053377	A1	20010726	WO 2001-JP292		20010118 <--
W: ID, JP, KR, US					
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR					
JP 3575605	B2	20041013	JP 2001-553843		20010118 <--
PRIORITY APPLN. INFO.:			JP 2000-9285	A	20000118 <--
			JP 2000-269051	A	20000905 <--
			JP 2000-356262	A	20001122 <--
			JP 2000-356263	A	20001122 <--
			WO 2001-JP292	W	20010118 <--

OTHER SOURCE(S): MARPAT 135:123607
ED Entered STN: 27 Jul 2001
GI



I

AB Title films contain I (R1 = monovalent ester-forming group; R2, R3 = halogen, C1-10 hydrocarbyl, or R1; A = di- or trivalent organic group; l = 1-2, m, n = 0-4) at a P content of 1,500-50,000 ppm (based on polyesters). Polymerizing ethylene glycol (II) and terephthalic acid copolymer in the presence of a compound (prepared from itaconic acid, 6-oxo-dibenzo-1,2- oxaphosphorin, and II), Et3N, and Sb2O3 gave a polyester composition containing 104-ppm P and 18-ppm Zn, which was pressed into a sheet, biaxially drawn and hot fixed to form a film with UL 94-VTM test VTM-0.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 51 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:479828 HCAPLUS Full-text
DOCUMENT NUMBER: 135:69760
TITLE: Built-up printed circuit boards, their carrier films, and their epoxy resin compositions without toxic combustion gases
INVENTOR(S): Iwasaki, Toshihiro; Suzuki, Tetsuaki
PATENT ASSIGNEE(S): Toshiba Chemical Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001181371	A	20010703	JP 1999-368744	19991227 <--
JP 3403987	B2	20030506		
PRIORITY APPLN. INFO.:			JP 1999-368744	19991227 <--

ED Entered STN: 03 Jul 2001

AB The carrier films, showing good heat, moisture, and corrosion resistance, have layers prepared from compns. containing (A) 5-70% (based on the total weight) thermoplastic/thermosetting resins of Mw ≥10,000, (B) epoxy resins containing 9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide (derivs.) or 10-(2,5-dihydroxyphenyl)-10-hydro-9-oxa-10-phosphaphenanthren-10-oxide (derivs.), (C) inorg. fillers, (D) hardeners, and (E) curing accelerators. Built-up printed circuit boards comprising the carrier films and glass fiber-reinforced epoxy resin prepreg sheets are also claimed.

L28 ANSWER 52 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:435491 HCAPLUS Full-text
DOCUMENT NUMBER: 135:34007
TITLE: Phosphorus-containing flame-retardant cured epoxy resins
INVENTOR(S): Wang, Chun-Shan; Lin, Ching Hsuan; Chiu, Hong Chen
PATENT ASSIGNEE(S): Taiwan
SOURCE: U.S. Pat. Appl. Publ., 10 pp., Cont.-in-part of U.S. Ser. No. 437,985.
CODEN: USXXCO
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2001003771	A1	20010614	US 2001-757900	20010110 <--
US 6291626	B1	20010918	US 1999-261884	19990303 <--
US 6291627	B1	20010918	US 1999-437985	19991110 <--
PRIORITY APPLN. INFO.:			US 1999-261884 A2	19990303 <--
			US 1999-437985 A2	19991110 <--
			TW 1998-87109911 A	19980619 <--
			TW 1999-88106160 A	19990416 <--

ED Entered STN: 15 Jun 2001

AB A flame-Retardant advanced epoxy resin was prepared by reacting an active-hydrogen-containing phosphorus compound (9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide) with a di- or poly-functional epoxy resin via an addition reaction between the active hydrogen and the epoxide group, which has a high glass transition temperature (Tg), high decomposition temperature and high elastic modulus and thus is suitable for printed circuit board and semiconductor encapsulation applications by curing with a curing agent.

L28 ANSWER 53 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:108941 HCAPLUS Full-text
DOCUMENT NUMBER: 135:19680
TITLE: Synthesis of flame retardant and antioxidant 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (POP)
AUTHOR(S): Zhao, Xiaoping; Li, Shaowen; Yang, Jun; Ding, Xiangdong; You, Yuru
CORPORATE SOURCE: Anhui Institute of Chemical Industry, Hefei, 230041,

Peop. Rep. China
SOURCE: Huaxue Yanjiu Yu Yingyong (**2000**), 12(6), 648-650
CODEN: HYYIFM; ISSN: 1004-1656
PUBLISHER: Huaxue Yanjiu Yu Yingyong Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
OTHER SOURCE(S): CASREACT 135:19680
ED Entered STN: 14 Feb 2001
AB The title compound was synthesized by esterifying 2-phenylphenol with phosphorus trichloride in the presence of aluminum chloride at 60-215° for about 11 h, distilling at 202-235° and 10 mmHg, hydrolyzing with aqueous sodium carbonate, and cyclizing in vacuum.

L28 ANSWER 54 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:17908 HCAPLUS Full-text
DOCUMENT NUMBER: 134:73002
TITLE: Flame-retardant epoxy resin powder coatings free from halogens
INVENTOR(S): Fujibuchi, Tonan; Sasai, Shoji
PATENT ASSIGNEE(S): Sumitomo Durez Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001002960	A	20010109	JP 1999-169478	19990616 <--
PRIORITY APPLN. INFO.:			JP 1999-169478	19990616 <--

ED Entered STN: 09 Jan 2001
AB The epoxy coatings contain hardeners, fillers, and P-containing flame retardants prepared by addition reaction of 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (I) with bisphenol diglycidyl ethers, their oligomers, or compds. with structure N-p-C6H4CH2C6H4N or N-p-C6H4O. Addition of small amts. of the flame retardants imparts high flame retardancy without sacrificing curability, coatability, and properties of cured films. Thus, a powder coating with P content 2.7% comprised a bisphenol A-type epoxy resin (EP 1003) 100, benzophenonetetracarboxylic anhydride 10.7, 2-methylimidazole 0.1, fused SiO2 100, a silane coupling agent 1.0, pigments 1.5, and a P-containing flame retardant prepared by reacting Epikote 828 and I at equivalent ratio 1:1 58 parts. The coating exhibited gel time (JIS C 2161) 79 s, UL 94 flame retardance V-0, and elec. resistance of a coated ceramic capacitor after 2 h at 121° ≥1012 Ω, and good coatability.

L28 ANSWER 55 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:780917 HCAPLUS Full-text
DOCUMENT NUMBER: 133:351195
TITLE: Halogen-free epoxy resin compositions with good fire, heat, and water resistance and manufacture of the epoxy resins
INVENTOR(S): Moriyama, Hiroshi; Takahashi, Yoshiyuki; Yoshizawa, Masakazu
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF

DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000309624	A	20001107	JP 2000-40985	20000218 <--
JP 3642403	B2	20050427		

PRIORITY APPLN. INFO.: JP 1999-44576 A 19990223 <--
ED Entered STN: 07 Nov 2000
AB The compns. with P content 2-8% contain (A) epoxy resins containing phosphinyl groups having aromatic groups attached to P atoms and (B) curing agents. The compns. are useful for vanish for printed circuit boards. Thus, WEA 7628 H258N (glass cloth) was impregnated with a solution containing 100 parts P-containing epoxy resin [manufactured from bisphenol A epoxy resin and (diphenylphosphinyl)hydroquinone] and 2.4 parts dicyandiamide and dried to give a prepreg. Eight sheets of the prepregs were piled together and hot-pressed to give a laminated sheet showing interlayer peeling strength 2.7 kN/m, fire resistance (UL 94V test) V-0, Tg 130°, and water absorption (pressure cooker test 121°, 2 h) 0.90%.

L28 ANSWER 56 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:748856 HCAPLUS Full-text
DOCUMENT NUMBER: 133:310516
TITLE: Fire-resistant resin compositions and laminated boards using them
INVENTOR(S): Komori, Kiyotaka; Ogasawara, Kenji; Kashihara, Keiko
PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000297138	A	20001024	JP 1999-163146	19990609 <--
EP 1059329	A1	20001213	EP 1999-123634	19991127 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6403690	B1	20020611	US 1999-450659	19991130 <--

PRIORITY APPLN. INFO.: JP 1999-32223 A 19990210 <--
JP 1999-163146 A 19990609 <--
ED Entered STN: 24 Oct 2000
AB The compns. contain radically polymerized resins modified with 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide (I) or its 10-(CH2)nR1 derivs. (R1 = compound having ≥2 phenolic OH or epoxy group; n = 0-3). Thus, I derivative (R1 = 2,5-dihydroxyphenyl; n = 0; HCA-HQ) 162, bisphenol F-type epoxy resin (YDF 170) 342, and PPh3 1 g were stirred at 148° for 1 h, treated with hydroquinone 0.2, methacrylic acid 95, and PPh3 0.6 g, mixed with styrene 257, Al(OH)3 257, Mg(OH)2 257, and Percumyl H 80 11 g to give a composition A Cu-clad laminate prepared using the composition showed UL-94 fire resistance rating V-1 to V-0.

L28 ANSWER 57 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:608805 HCAPLUS Full-text

DOCUMENT NUMBER: 133:194049
TITLE: Flame-retardant unsaturated polyester resin
INVENTOR(S): Takeuchi, Hiroshi; Inoue, Tomoko; Okumura, Hiroya; Shiraki, Hiroyuki
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000050486	A1	20000831	WO 2000-JP953	20000218 <--
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 2000309697	A	20001107	JP 1999-333917	19991125 <--
JP 2001152000	A	20010605	JP 1999-333916	19991125 <--

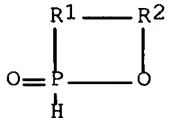
PRIORITY APPLN. INFO.: JP 1999-42508 A 19990222 <--
JP 1999-333916 A 19991125 <--
JP 1999-333917 A 19991125 <--

ED Entered STN: 01 Sep 2000
AB The title resin useful for laminates for use in elec. and electronic fields contains a P compound such as 9,10-dihydro-9-oxa-10- phosphaphenanthrene 10-oxide (I). Thus, a polyester was prepared from propylene glycol 281.5, Newpol BP 23P 605.2, itaconic acid 199.1, fumaric acid 406.3 g in the presence of 324.3 g I and hydroquinone.
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 58 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:529667 HCAPLUS Full-text
DOCUMENT NUMBER: 133:136455
TITLE: Epoxy resin insulated adhesive compositions having good fire, heat resistance and storage stability for multilayer printed boards
INVENTOR(S): Komiyatani, Toshiro; Kamisaka, Masao; Arai, Masaki
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000212538	A	20000802	JP 1999-12401	19990120 <--

PRIORITY APPLN. INFO.: JP 1999-12401 19990120 <--
ED Entered STN: 03 Aug 2000
GI



I

AB The composition between layer comprises (a) I (R1, R2 = alkyl, aryl), (b) a polyfunctional epoxy resin having ≥3 glycidyl group, and (c) a bisphenol-type epoxy resin with weight mol. weight 20,000-100,000. Thus, Epiclon N 770 (phenolic novolak epoxy resin) 100, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide 2.6 parts were reacted at 80° for 3 h, mixed with bisphenol F epoxy resin 25, 2-phenylimidazole 5, KR 46B (titanate coupling agent) 0.2, and barium sulfate 20 parts to form an adhesive varnish, which was laminated with Cu foil and glass cloth to give multilayer printed boards showing peel strength 1.3 kg/cm, fire resistance V-0, and good surface smoothness and moisture absorption solder heat resistance.

L28 ANSWER 59 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:529526 HCAPLUS Full-text
DOCUMENT NUMBER: 133:135749
TITLE: Manufacture of phosphorus-containing fire-resistant polyesters
INVENTOR(S): Sakai, Makiko; Yasuhara, Shigeaki; Kitsuka, Yoshiyuki
PATENT ASSIGNEE(S): Nippon Ester Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000212266	A	20000802	JP 1999-17124	19990126 <--
PRIORITY APPLN. INFO.:			JP 1999-17124	19990126 <--

OTHER SOURCE(S): MARPAT 133:135749
ED Entered STN: 03 Aug 2000
AB The polyesters, useful as fibers, films, adhesives, etc., are manufactured by (trans)esterification of ≥1 dicarboxylic acid or their ester-forming derivative with ≥1 glycol in the presence of ≥500 ppm (as P in the polyesters) 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10- oxide (I) or its C1-12 hydrocarbyl-substituted derivs. and X1RX2 (R = unsatd. C2-12 alkylene; X1, X2 = OH, CO2H) 0.9-1.2 times I in the molar amount and polycondensation of the products. Thus, 98.0 mol parts terephthalic acid and 160.0 mol parts ethylene glycol were esterified at 0.1 MPa and 260° in the presence of 1.9 mol parts I and 2.0 mol parts itaconic acid and then polycondensed at 275° to give a polyester with intrinsic viscosity 0.61 (at 20° in 1/1 PhOH/tetrachloroethane) and P content 3100 ppm, which was spun and woven to give a fabric with limited O index (LOI, JIS K7201 A2) 26.9%.

L28 ANSWER 60 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:25712 HCAPLUS Full-text
DOCUMENT NUMBER: 132:64992
TITLE: Storage-stable halogen-free fire-resistant epoxy resin compositions and prepregs and laminates therewith
INVENTOR(S): Tobisawa, Akihiko; Shibata, Kazuhiko
PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF

DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000007897	A	20000111	JP 1998-179187	19980625 <--

PRIORITY APPLN. INFO.: JP 1998-179187 19980625 <--
ED Entered STN: 12 Jan 2000
AB Title compns. essentially comprise (A) nonhalogenated epoxy resins having ≥2 mol epoxy groups in the mol., (B) 9,10-dihydro-9-oxa-10- phosphaphenanthlene-10-oxide, and (C) isocyanate compds. having ≥1 isocyanate group in the mol. Thus, 155 parts HCA and 120 parts methylene diisocyanate (Sumidur 44S) were dissolved in DMF, stirred for 24 h, and 21.5 parts dicyandiamide and 705 parts phenol novolak epoxy resin (Epiclon N 770) were added to give a 2.2% P-containing varnish having gelation time 300 s immediately and 294 s after 7 days, compared with 230 s and 146 s, resp., for a composition comprising Epiclon N 770 100.0, dicyandiamide 5.5, and HCA 19.3 parts without Sumidur. Six prepregs prepared by impregnating glass fiber fabrics with the varnish were sandwiched between two copper folis and heat-pressed to give a Cu-clad laminate having fire resistance (UL 94) V-0, peeling strength 1.5 kN/m, and good solder heat resistance.

L28 ANSWER 61 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:392745 HCAPLUS Full-text
DOCUMENT NUMBER: 131:74429
TITLE: Phosphorus-containing epoxy resin compositions
INVENTOR(S): Ishihara, Kazuo; Asano, Kazuaki; Kawamoto, Toshihiko; Takuwa, Seigetake
PATENT ASSIGNEE(S): Toto Kasei K. K., Japan; Tohto Kasei Co., Ltd
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11166035	A	19990622	JP 1998-248256	19980902 <--
JP 3613724	B2	20050126		

PRIORITY APPLN. INFO.: JP 1997-244207 A 19970909 <--
ED Entered STN: 28 Jun 1999
AB The title compns., containing 0.8-8.0% P, with good fire resistance, and useful as Cu-clad laminates for printed circuit boards, as potting compns. for electronic parts, and for moldings, adhesives, coatings, etc. (no data), are prepared from epoxy resins containing ≥20% novolak epoxy resins (e.g., EpoTohto YDCN-701P, EpoTohto YDPN-638) and P compds. (e.g., 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide).

L28 ANSWER 62 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:208642 HCAPLUS Full-text
DOCUMENT NUMBER: 130:268071
TITLE: Preparation of fire-resistant polyester from reactive fireproofing agent
INVENTOR(S): Saito, Toranosuke; Hirayama, Takumi; Sumitomo, Hiroshi

PATENT ASSIGNEE(S): Saito Kaseihin Kenkyusho Y. K., Japan; Sanko Kaihatsu Kagaku Kenkyusho K. K.
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11080340	A	19990326	JP 1997-242664	19970908 <--
PRIORITY APPLN. INFO.:			JP 1997-242664	19970908 <--

ED Entered STN: 02 Apr 1999
AB Compound (I) prepared from 9,10-Dihydro-9-oxa-10-phosphaphenanthlene-10-oxide (II), itaconic acid, and ethylene glycol, is used for preparation of fire-resistant polyester. Thus, II 1297 g was reacted with ethylene glycol 1.242 g and itaconic acid 796 g to give I (n=18.1), 130 g of which was polymerized with ethylene glycol/dimethyl terephthalate reaction product to give a polyester with phosphorus content 0.64%.

L28 ANSWER 63 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:158025 HCAPLUS Full-text
DOCUMENT NUMBER: 130:282430
TITLE: Synthesis and characterization of copolyesters containing the phosphorus linking pendent groups
AUTHOR(S): Chang, Shinn-Jen; Chang, Feng-Chih
CORPORATE SOURCE: Institute of Applied Chemistry, National Chiao-Tung University, Hsinchu, Taiwan
SOURCE: Journal of Applied Polymer Science (**1999**), 72(1), 109-122
CODEN: JAPNAB; ISSN: 0021-8995
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 11 Mar 1999
AB Poly(ethylene terephthalate)-co-poly(ethylene DDP)s [PET-co-poly(ethylene DDP)s] based on 9,10-dihydro-10[2,3-di(hydroxycarbonyl)propyl]-10-phosphaphenanthrene-10-oxide (referred to as DDP), were synthesized by charging 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOP), itaconic acid, terephthalic acid, and ethylene glycol in one reactor to conduct the microaddn. reaction (using H2PtCl6 as catalyst), esterification reaction, and polycondensation reaction. H2PtC16 has demonstrated to be a highly efficient microaddn. catalyst to improve the DDP conversion. The microaddn. reaction of the phosphorus compound (DOP) with the itaconic acid can be proceeded at a significantly lower temperature (110°C) and results in higher conversion (> 98%). The use of the H2PtCl6 catalyst makes it possible to charge all the reactants in one reactor to produce high mol. weight phosphorus-containing copolyesters without requiring the presynthesis of the DDP. These resulting copolyesters are identified by Fourier transform IR spectroscopy, 1H-NMR, and differential scanning calorimetric anal. Thermal characteristics, thermal stability, intrinsic viscosity, acid value, and rheol. and mech. properties of these copolyesters were also characterized. The presence of the bulky pendent phosphorus side groups in the copolyester tends to decrease the structural regularity and retards its crystallization The formation of a protected char layer for the phosphorus-containing copolyester raises the decomposition temperature of the copolyester under an oxygen atmospheric higher than that of PET. The limiting oxygen index values of all phosphorus-containing copolyesters are all higher than 33. Higher phosphorus content results in

decreasing crystallinity, lower melting temperature, lower decomposition temperature, as well as lower tensile strength, but increasing residual char after thermal degradation and higher limiting oxygen index value. The rheol. behaviors of copolyesters remain similar to that of PET. The glass temps. of copolyesters are all - 77°C (76.8°-77.2°C). Incorporation of phosphorus moieties into its mol. chain has a significant effect on thermal and flame retardancy behavior. However, the crystal lattice of all copolyesters do not change with incorporation of the pendent phosphorus side group in the backbone of the copolyester.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 64 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:566203 HCAPLUS Full-text
DOCUMENT NUMBER: 129:246067
TITLE: Synthesis and properties of epoxy resins containing 2-(6-oxid-6H-dibenz[c,e][1,2]oxaphosphorin-6-yl)1,4-benzenediol
AUTHOR(S): Wang, Chun-Shan; Shieh, Jeng-Yueh
CORPORATE SOURCE: Department of Chemical Engineering, National Cheng Kung University, Tainan, 701, Taiwan
SOURCE: Polymer (**1998**), 39(23), 5819-5826
CODEN: POLMAG; ISSN: 0032-3861
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 Sep 1998
AB 2-(6-Oxido-6H-dibenz[c,e][1,2]oxaphosphorin-6-yl)1,4-benzenediol (ODOPB) was prepared by the addition reaction between 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOPO) and p-benzoquinone while DOPO was synthesized through multistep reaction from o-phenylphenol and phosphorus trichloride. ODOPB was used as a reactive flame-retardant in o-cresol-formaldehyde novolac epoxy resin (Quatrex 3330) for electronic applications. Owing to the rigid structure of ODOPB and the pendant P group, the resultant phosphorus-containing epoxy resins exhibited better flame retardance and a higher glass transition temperature and thermal stability than the regular bromine-containing flame-retardant epoxy resin. UL 94-VO rating could be achieved with a phosphorus content of as low as 1.1% (comparable to a bromine content of 6%) in the cured resin and no fume and toxic gas emissions were observed
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 65 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:12438 HCAPLUS Full-text
DOCUMENT NUMBER: 126:60135
TITLE: Preparation of DOP-containing mixture and their use
INVENTOR(S): Dietrich, Joerg; Rathfelder, Paul; Rieckert, Horst
PATENT ASSIGNEE(S): Schill & Seilacher Gmbh & Co., Germany
SOURCE: Ger., 5 pp.
CODEN: GWXXAW
DOCUMENT TYPE: **Patent**
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19522876	C1	19961114	DE 1995-19522876	19950623 <--
CA 2211899	A1	19970109	CA 1996-2211899	19960621 <--

CA 2211899	C	20010515			
WO 9700878	A1	19970109	WO 1996-EP2715		19960621 <--
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG					
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA					
AU 9663046	A	19970122	AU 1996-63046		19960621 <--
AU 694678	B2	19980723			
EP 833832	A1	19980408	EP 1996-922021		19960621 <--
EP 833832	B1	20001220			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
CN 1188480	A	19980722	CN 1996-194975		19960621 <--
CN 1063448	B	20010321			
JP 10510545	T	19981013	JP 1997-503587		19960621 <--
JP 3107833	B2	20001113			
IL 121433	A	19991130	IL 1996-121433		19960621 <--
AT 198206	T	20010115	AT 1996-922021		19960621 <--
CZ 289722	B6	20020313	CZ 1997-4188		19960621 <--
PL 183143	B1	20020531	PL 1996-322823		19960621 <--
IN 188832	A1	20021109	IN 1996-CA1156		19960621 <--
RO 119464	B1	20041130	RO 1997-2327		19960621 <--
TW 450970	B	20010821	TW 1996-85107554		19960624 <--
BG 63260	B1	20010731	BG 1997-101906		19970924 <--
US 5821376	A	19981013	US 1997-945432		19971024 <--
PRIORITY APPLN. INFO.:			DE 1995-19522876	A	19950623 <--
			WO 1996-EP2715	W	19960621 <--

ED Entered STN: 10 Jan 1997

AB Reaction of PCl3 with o-phenylphenol in the presence of ZnCl2 at 70° gave a mixture of 2'-hydroxydiphenyl-2-phosphinic acid with 6-hydroxy-6H-dibenz[c,e][1,2]oxaphosphorin after hydrolysis. The tech. mixture prepared was useful as flame retardant.

L28 ANSWER 66 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:79906 HCAPLUS Full-text

DOCUMENT NUMBER: 120:79906

TITLE: Manufacture of phosphorus-containing fire retardants for polyesters

INVENTOR(S): Endo, Seiji; Matsuoka, Takeshi; Tanaka, Itsuro

PATENT ASSIGNEE(S): Toyo Boseki, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DOCUMENT TYPE: **Patent**

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05179244	A	19930720	JP 1991-360592	19911228 <--
JP 3077345	B2	20000814		
PRIORITY APPLN. INFO.:			JP 1991-360592	19911228 <--

ED Entered STN: 19 Feb 1994

AB The title retardants are prepared by the reaction of organic P compds. (e.g., HCA) and unsatd. carboxylic acids (e.g., itaconic acid) or anhydrides in ethylene glycol, wherein 0.1-10 mol% (based on the P compound) alkali metal or

alkaline earth metal compd(s). (e.g., NaOH) for obtaining turbidity-free products that do not cause discoloration in polyesters.

L28 ANSWER 67 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:626708 HCAPLUS Full-text
DOCUMENT NUMBER: 119:226708
TITLE: Manufacture of fire-resistant polyesters
INVENTOR(S): Endo, Seiji; Matsuoka, Takeshi; Tanaka, Itsuro
PATENT ASSIGNEE(S): Toyo Boseki, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05178975	A	19930720	JP 1991-359638	19911228 <--
JP 3141477	B2	20010305		

PRIORITY APPLN. INFO.: JP 1991-359638 19911228 <--
OTHER SOURCE(S): MARPAT 119:226708
ED Entered STN: 27 Nov 1993
AB Title polyesters, useful for fibers, films, boards, etc., are manufactured from ≥1 dicarboxylic acid (derivs.) and ≥1 diol (derivs.) and/or ≥1 hydroxycarboxylic acid (derivs.) by addition of unsatd. carboxylic acid (derivs.) and HP(O)R1R2 [R1-2 = (un)substituted alkyl, alkoxy, or aryl; R1, R2 may be bonded to form a ring) in the desired stage at which the intrinsic viscosity of the polyester is <0.5. Thus, terephthalic acid 1203, ethylene glycol 1030, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10- oxide 62.8, and itaconic acid 39.7 g were heated in an autoclave in the presence of Et3N at 238° and 2.51 g/cm2, then after addition of 0.88 g Sb2O3, the mixture was heated at 275° and 0.15 mmHg for 3 h to give a polyester with intrinsic viscosity 0.63 and m.p. 250°, forming a fabric with excellent flame retardance.

L28 ANSWER 68 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:626707 HCAPLUS Full-text
DOCUMENT NUMBER: 119:226707
TITLE: Manufacture of fire-resistant polyesters
INVENTOR(S): Endo, Seiji; Matsuoka, Takeshi; Tanaka, Itsuro
PATENT ASSIGNEE(S): Toyo Boseki, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05178973	A	19930720	JP 1991-360590	19911228 <--
JP 3141478	B2	20010305		

PRIORITY APPLN. INFO.: JP 1991-360590 19911228 <--
ED Entered STN: 27 Nov 1993
AB Fire-resistant polyesters, useful for fibers, films, boards, etc., are manufactured by treating polyester-forming materials with unsatd. carboxylic acids or their ester-forming derivs. and organic P compds. in the presence of

≥1 alkali or alkaline earth compound catalysts and addition of R1R2P(O)nOR3 (R1-2 = OH, alkyl, aryl, alkoxy, aryloxy; R1R2 may be bonded to form a ring; R3 = H, alkyl, aryl; n = 0, 1) prior to polycondensation. Thus, di-Me terephthalate 1406, ethylene glycol 1030, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide 62.8, and di-Me itaconate 46 g were heated in an autoclave in the presence of Na ethylene glycoxide and Zn(OAc)2 at 110-220°, then after addition of 0.57 g H3PO4 and 0.55 g Sb2O3, the mixture was heated at 275° and 0.15 mmHg for 95 min to give a P-containing polyester with intrinsic viscosity retention 97.6% after heated under pressure at 130° for 1 h and b value 7.25, forming a fabric with excellent flame retardance.

L28 ANSWER 69 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:604160 HCAPLUS Full-text
DOCUMENT NUMBER: 119:204160
TITLE: Manufacture of fire-resistant polyesters
INVENTOR(S): Endo, Seiji; Matsuoka, Takeshi; Tanaka, Itsuro
PATENT ASSIGNEE(S): Toyo Boseki, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05178974	A	19930720	JP 1991-360591	19911228 <--
JP 3141479	B2	20010305		
PRIORITY APPLN. INFO.:			JP 1991-360591	19911228 <--

ED Entered STN: 13 Nov 1993
AB Fire-resistant polyesters, useful for fibers, films, boards, etc., are manufactured by treating polyester-forming materials with unsatd. carboxylic acids or their ester-forming derivs. and organic P compds. and subsequent polycondensation, in which Zn or Co compds. are added when the content of unreacted organic P compds. decrease to a certain level. Thus, terephthalic acid 1233, ethylene glycol 1040, 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (I) 41.8, and itaconic acid 25.2 g were heated in an autoclave in the presence of Et3N at 240° to 95.8% I conversion, then after addition of 0.45 g Zn(OAc)2.2H2O and 0.65 Sb2O3, the mixture was heated at 275°/0.15 mmHg for 95 min to give a P-containing polyester with intrinsic viscosity 0.61, forming a fabric with excellent flame retardance.

L28 ANSWER 70 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:214297 HCAPLUS Full-text
DOCUMENT NUMBER: 118:214297
TITLE: Agents for imparting the flame retardance to thermoplastics
INVENTOR(S): Takahashi, Katsuji; Sato, Yuji
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 04300968	A	19921023	JP 1991-66465	19910329 <--
PRIORITY APPLN. INFO.:			JP 1991-66465	19910329 <--

ED Entered STN: 29 May 1993

AB The title agents especially useful for use in plastics containing ABS resin and PBT resin, are derived from the blocking reaction of epoxy groups of halogenated bisphenol-based epoxy resins by active H-containing phosphonic acid ester, phosphinic acid ester, etc. Heating under N to melt a mixture of tetrabromobisphenol A (I) diglycidyl ether 720, I 150 and 9,10-dihydro-9-oxa-10-phosphaphenanthren-10-oxide 282 g and heating in the presence of NaOH gave a product useful as fireproofing agent as well as heat and light stabilizer for, e.g. ABS resin.

L28 ANSWER 71 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:633260 HCAPLUS Full-text
DOCUMENT NUMBER: 113:233260
TITLE: Preparation of fire-retardant polyesters
INVENTOR(S): Matsumoto, Tetsuo; Tsujimoto, Keizo; Matsuzawa, Katsuto; Hamada, Shunichiro; Shinogi, Kouzi; Nagai, Satomi; Imamura, Takayuki; Kuroyanagi, Akiko
PATENT ASSIGNEE(S): Japan Ester Co., Ltd., Japan
SOURCE: U.S., 7 pp. Cont. of U.S. Ser. No. 225,441, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: **Patent**
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4940772	A	19900710	US 1989-438129	19891120 <--
PRIORITY APPLN. INFO.:			US 1988-225441 B1	19880728 <--

ED Entered STN: 22 Dec 1990

AB Flame-retardant fiber are prepared by polymerizing poly(ethylene terephthalate) or poly(butylene terephthalate) with 0.5-25 mol% (based on acid component) monomer bearing esterifiable groups and reaction of this polymer with ≤1 equivalent P compound HP(O)R1R2 (R1,R2 = alkyl, aryl, alkoxy, aryloxy, or form a ring). Bis(hydroxyethyl) terephthalate was heated with 2.5% maleic anhydride and ethylene glycol at 260°, mixed with 2% 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide, heated, and spun to fire-resistant fibers.

L28 ANSWER 72 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:180148 HCAPLUS Full-text
DOCUMENT NUMBER: 112:180148
TITLE: Manufacture of fire-resistant polyesters
INVENTOR(S): Matsumoto, Tetsuo; Imamura, Takayuki; Azeyanagi, Akiko; Tsujimoto, Keizo; Hamada, Shunichiro
PATENT ASSIGNEE(S): Japan Ester Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01284521	A	19891115	JP 1988-114150	19880511 <--
JP 07033437	B	19950412		

PRIORITY APPLN. INFO.: JP 1988-114150 19880511 <--
ED Entered STN: 12 May 1990
AB The title polyesters are manufactured without lowering mech. strength by copolymg. 1-10 mol% (based on total acid components) ester-forming functional group-containing unsatd. compds. to polyesters at ≤260° to intrinsic viscosity 0.25-0.48, then polycondensing with 0.7-1.0:1 (equivalent ratio, based on unsatd. bonds of the copolymd. unsatd. compds.) PHR1R2(O)n (R1, R2 = C1-20 alkyl, C6-20 aryl, C1-20 alkoxy, C6-20 aryloxy; R1R2 may be bonded to form a ring; n = 0, 1) at ≤270° to intrinsic viscosity ≥0.5. Thus, a slurry of (1.6:1, mol ratio) ethylene glycol (I) and terephthalic acid was added to bis(β-hydroxyethyl) terephthalate and its oligomers and heated at 255°, then treated with (1:0.8, mol. ratio) maleic anhydride (II)-I mixture (II content is 2.5 mol% of total acid components) at 260° in the presence of GeO2 to give a polyester with intrinsic viscosity 0.45, which was treated with 2.0 mol% (based on total acid components) 9,10-dihydro-9-oxa-10-phosphophenanthrene-10-oxide at 260° and 0.3 torr to give a fire-resistant polyester with intrinsic viscosity 0.65 and m.p. 250° showing good strength.

L28 ANSWER 73 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:58346 HCAPLUS Full-text
DOCUMENT NUMBER: 110:58346
TITLE: Fire-resistant thermotropic liquid crystal polyesters
INVENTOR(S): Matsumoto, Tetsuo; Imamura, Takayuki; Kin, Tsukiji; Sasaki, Shingo
PATENT ASSIGNEE(S): Unitika Ltd., Japan; Japan Ester Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63182340	A	19880727	JP 1987-13167	19870122 <--
JP 2507724	B2	19960619		

PRIORITY APPLN. INFO.: JP 1987-13167 19870122 <--
OTHER SOURCE(S): MARPAT 110:58346
ED Entered STN: 17 Feb 1989
AB Title polyesters with high intrinsic viscosity (>0.5) are prepared by copolymg. with 0.5-10 mol% (based on the final polyesters) unsatd. compds. containing ester-forming groups and reacting with HR1R2PO (R1, R2 = H, alkyl, aryl, alkoxy, allyloxy, or R1 and R2 can be part of a ring). Thus, terephthalic acid 498, ethylene glycol 279, and maleic acid 18.3 g were heated at 260° for 2.5 h, mixed with 2.5 + 10-4 mol GeO2, heated at 275° in vacuo, treated with 2.5 mol% (based on 1 mol acid component) MeOP(O)MeH at 275° for 20 min. then with 1.5 equiv mol 4-acetoxybenzoic acid at 230°-270° in vacuo for 14.5 h to give a thermotropic polyester with intrinsic viscosity 0.60 dL/g, and limiting O index 34.

L28 ANSWER 74 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1987:637590 HCAPLUS Full-text
DOCUMENT NUMBER: 107:237590
TITLE: Flame-retardant polyesters
INVENTOR(S): Shinoki, Mitsuharu; Nagai, Satomi; Matsumoto, Tetsuo; Matsuzawa, Katsuto
PATENT ASSIGNEE(S): Japan Ester Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: **Patent**
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62172017	A	19870729	JP 1986-13978	19860123 <--
JP 03059087	B	19910909		

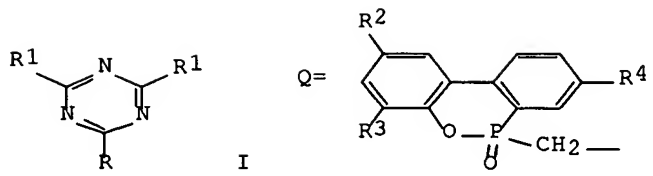
PRIORITY APPLN. INFO.: JP 1986-13978 19860123 <--
ED Entered STN: 25 Dec 1987
AB Flame-retardant polyesters are manufactured by treating polyesters containing 0.5-25 mol% unsatd. groups (based on 1 mol total acid components) with HP(O)RR1 (R, R1 = aryl, alkyl, alkoxy, aryloxy, RR1 = ring member). Thus, terephthalic acid 498, HOCH2CH2OH 279, and maleic acid 18.3 g were polymerized, then treated with 16.5 g of 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide to give a polyester with good fire resistance.

L28 ANSWER 75 OF 75 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1978:191050 HCAPLUS Full-text
DOCUMENT NUMBER: 88:191050
TITLE: Organophosphorus compounds
INVENTOR(S): Saito, Toranosuke; Kitani, Masakatsu; Mori, Kenshi; Izawa, Shinichi
PATENT ASSIGNEE(S): Sanko Kaihatsu Kagaku Kenkyusho, Japan; Asahi-Dow Ltd.
SOURCE: Ger. Offen., 38 pp.
CODEN: GWXXBX
DOCUMENT TYPE: **Patent**
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2730371	A1	19780112	DE 1977-2730371	19770705 <--
DE 2730371	B2	19800522		
DE 2730371	C3	19810129		
JP 53005181	A	19780118	JP 1976-78874	19760705 <--
JP 58055153	B	19831208		
JP 54003081	A	19790111	JP 1977-65815	19770606 <--
JP 59006318	B	19840210		
GB 1547105	A	19790425	GB 1977-26534	19770624 <--
FR 2357572	A1	19780203	FR 1977-20517	19770704 <--
FR 2357572	B1	19800627		
NL 7707412	A	19780109	NL 1977-7412	19770705 <--
NL 187242	B	19910218		
NL 187242	C	19910716		
US 4086206	A	19780425	US 1977-812943	19770705 <--
CA 1065864	A1	19791106	CA 1977-282047	19770705 <--

PRIORITY APPLN. INFO.: JP 1976-78874 A 19760705 <--
JP 1977-65815 A 19770606 <--

ED Entered STN: 12 May 1984
GI



I

AB Approx. 15 title compds. I (R = Ph, NH2-xQx; R1 = NH2-xQx; R2, R3, R4 = H, halo, C1-8 alkyl, aralkyl, cyclohexyl, Ph; X = 0-2), useful as flame retardants for polymers, were prepared by the condensation of I (R = Ph, NH2; R1 = NH2) with H2CO, R5OH (R5 = Bu, Me), and oxaphosphaphenanthrenes. Thus, 252 g melamine, 515 g formalin, and 2 mL 10% Na2CO3 were treated with 962 g BuOH to give tris(butoxymethyl)melamine, which, with 1296 g 9,10-dihydro-9-oxa-10-phosphaphenanthrene 10-oxide, gave I (R = R1 = NHQ).

Search History

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L1            1 SEA ABB=ON  PLU=ON  US2005-558997/APPS
L2            1 SEA ABB=ON  PLU=ON  35948-25-5/RN
L3           67 SEA ABB=ON  PLU=ON  35948-25-5/CRN

     FILE 'HCAPLUS' ENTERED AT 15:13:59 ON 03 JUL 2007
L4          126 SEA ABB=ON  PLU=ON  L2(L)PREP/RL
L5          109 SEA ABB=ON  PLU=ON  L4 AND P/DT
L6           91 SEA ABB=ON  PLU=ON  L5 AND (PY<=2003 OR AY<=2003 OR PRY<=2003)

L7           17 SEA ABB=ON  PLU=ON  L4 NOT L5
L8           12 SEA ABB=ON  PLU=ON  L7 AND PY<=2003
L9          103 SEA ABB=ON  PLU=ON  (L6 OR L8)

     FILE 'REGISTRY' ENTERED AT 15:20:15 ON 03 JUL 2007
L10           1 SEA ABB=ON  PLU=ON  1,4-DIOXANE/CN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 15:21:06 ON 03 JUL 2007
L11       18520 SEA ABB=ON  PLU=ON  L10
L12           0 SEA ABB=ON  PLU=ON  L9 AND L11

     FILE 'REGISTRY' ENTERED AT 15:21:40 ON 03 JUL 2007
L13           1 SEA ABB=ON  PLU=ON  ALUMINUM TRIISOPROPOXIDE/CN

L14       87759 SEA ABB=ON  PLU=ON  FIRE-RESISTANT MATERIALS+RT/CT
L15       95763 SEA ABB=ON  PLU=ON  FIREPROOFING AGENTS+RT/CT
L16          78 SEA ABB=ON  PLU=ON  L9 AND L15
L17          78 SEA ABB=ON  PLU=ON  L9 AND L14

L18       19460 SEA ABB=ON  PLU=ON  PLASTICS, MISCELLANEOUS/CT(L)THERMOPLASTIC/
                OBI OR PLASTICS/CT(L)THERMOPLASTIC/OBI
L19           3 SEA ABB=ON  PLU=ON  L16 AND L18
L20           0 SEA ABB=ON  PLU=ON  L16 AND L11
L21        4956 SEA ABB=ON  PLU=ON  MUELLER W?/AU
L22          58 SEA ABB=ON  PLU=ON  MEUSEL E?/AU
L23         245 SEA ABB=ON  PLU=ON  HEINEMANN K?/AU
L24         152 SEA ABB=ON  PLU=ON  TAEGER E?/AU
L25           1 SEA ABB=ON  PLU=ON  (L21 OR L22 OR L23 OR L24) AND L16
L26           3 SEA ABB=ON  PLU=ON  (L19 OR L20)
L27           2 SEA ABB=ON  PLU=ON  L26 NOT L25
L28          75 SEA ABB=ON  PLU=ON  L16 NOT (L25 OR L26)

=>
```